APC-3228
Panel PC User Manual

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Warning!

This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

Disclaimer

This information in this document is subject to change without notice. In no event shall Aplex Technology Inc. be liable for damages of any kind, whether incidental or consequential, arising from either the use or misuse of information in this document or in any related materials.

Packing List

Accessories (as ticked) included in this package are:
☐ AC power cable ☐ Driver & manual CD disc ☐ Other._____(please specify)

Safety Precautions

Follow the messages below to prevent your systems from damage:

- Avoid your system from static electricity on all occasions.
- Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
- Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

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Chapter 1 System

1.1 Specifications

Specs	APC-3228
CPU	Intel Socket P Core 2 Duo Processor, FSB 1066/800/667 MHz, up to Intel P8400 processor
Chipset	Intel GM45 + Intel 9M-E
System Memory	2 x 200-pin SO-DIMM socket, support 800 MHz up to 4 GB DDR2 SDRAM
Display Size	21.5” 1920x1080 TFT LCD
Maximum Colors	16.7M
Viewing Angle (Degree)	H:170/V:160
Luminance (cd/m²)	250
Backlight Lifetime	50,000 Hours
Rating	Front Panel IP65 Rear Side IP30
Touch Screen Type	Resistive Type
I/O port	Standard I/O _ Audio, Line-in, Line-Out, MIC-in _ 2 x RJ-45 LAN connector _ 4 x USB 2.0 Ports _ 1 x DB-15 VGA port _ 1 x DVI-D port _ 1 x HDMI Port _ 1 x COM1 (RS232) _ 1 x PS2 Keyboard/Mouse _ 1 x ATX Power on/off Switch Option _ 2 x COM 2/3 (DB9) by cables _ 1 x DB-9 Port for (4 x DI / 4 x DO) by cable
Extension	● 1 x PCI 2.3 Slot (External) ● 1 x Mini-PCIe slot (Internal)
Storage	● 1 x CF slot (external) ● 1 x 2.5” SATA HDD ● 1 x SATA Combo device
Power Supply	AC115/230V
Construction and Color	Metal front panel and housing
Dimensions (WxHxD)	537 x 342 x 99 mm
Operating Temperature	0~50℃

Storage Temperature	-20~60℃
Relative Humidity	10%~90%@ 40° C, (non-condensing)
Certificate	CE/FCC Class A

1.2 Dimensions

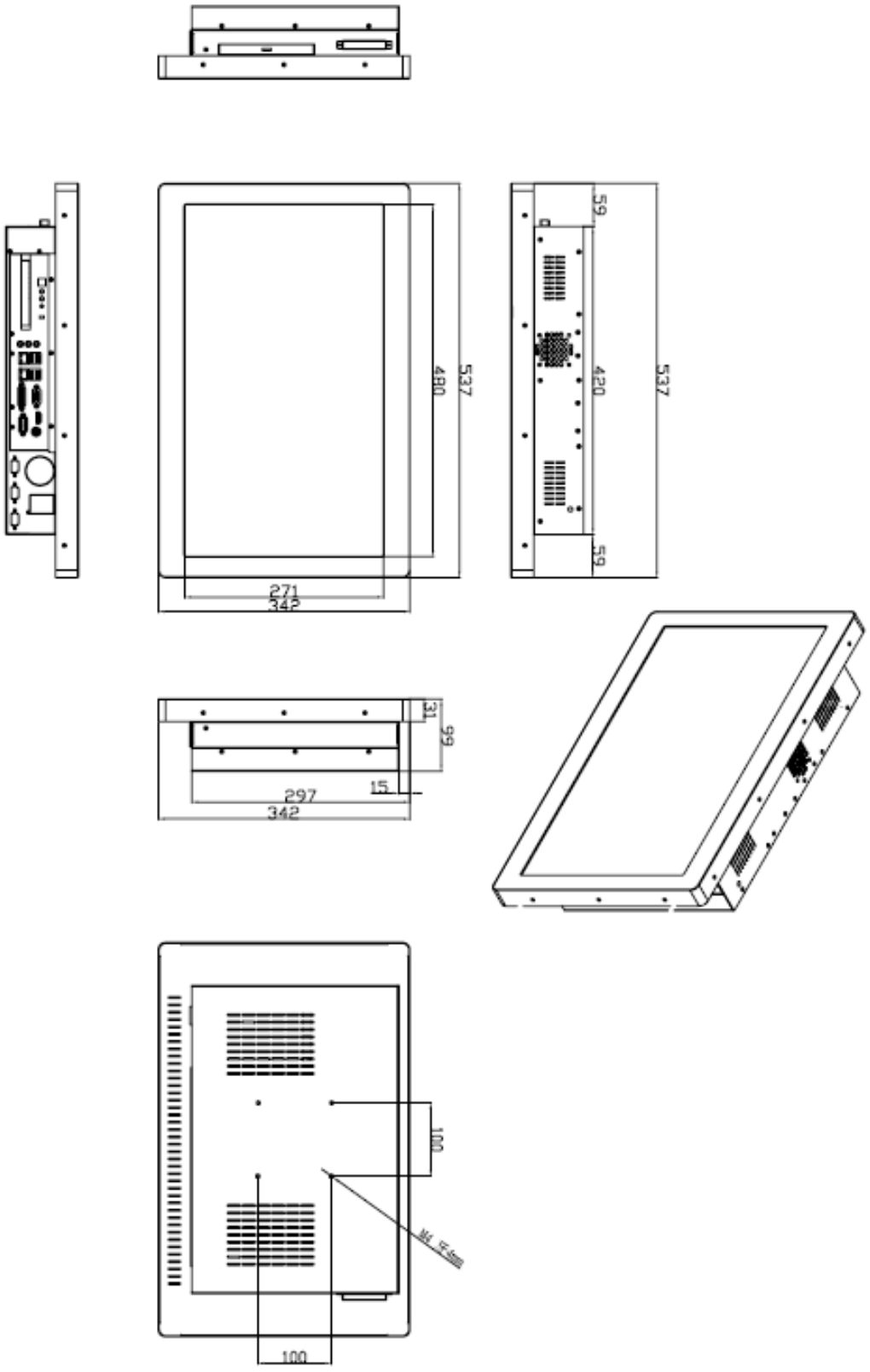
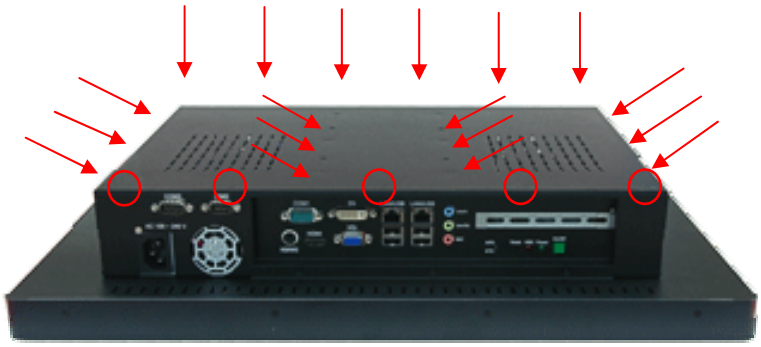


Figure 1.1: Dimensions of the APC-3228

1.3 Installation of HDD

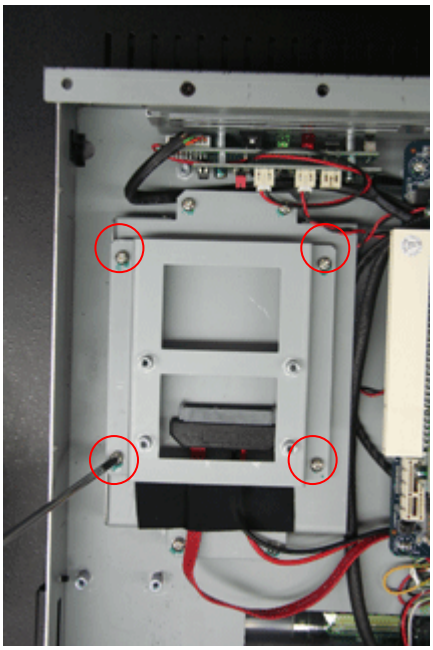
Step 1

There are 23 screws to deal with when enclosing or removing the chassis.



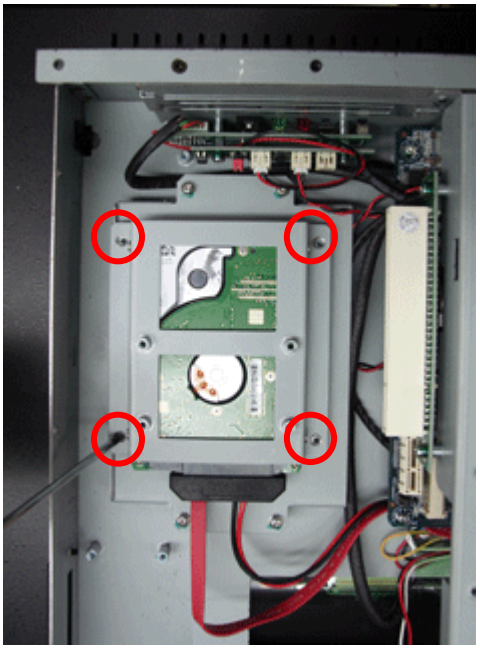
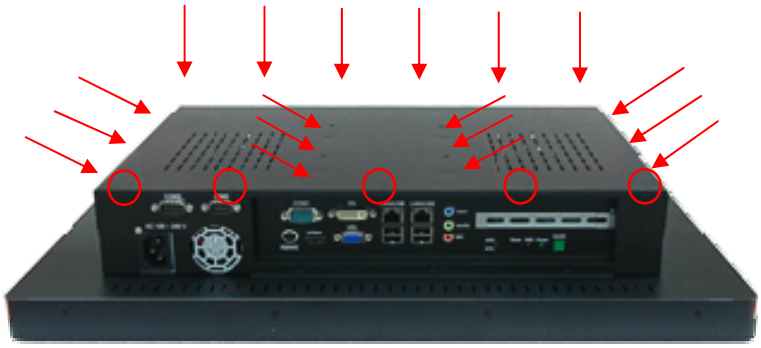
Step 2

Get the HDD screwed to the bracket with the four screws as shown by the arrows in the picture.

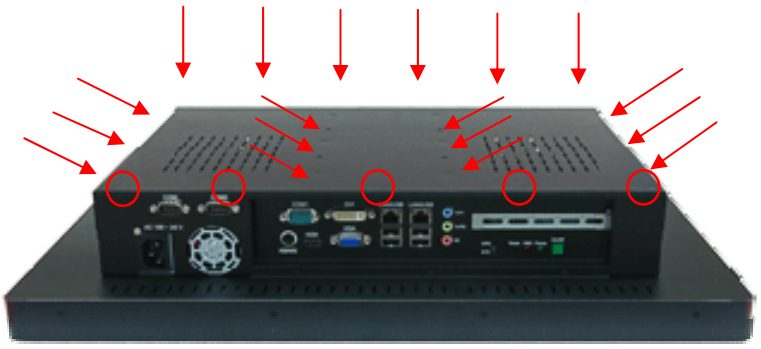
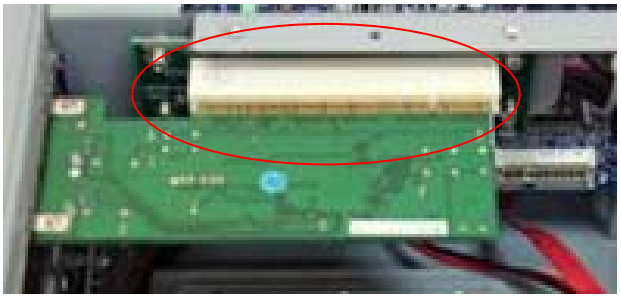
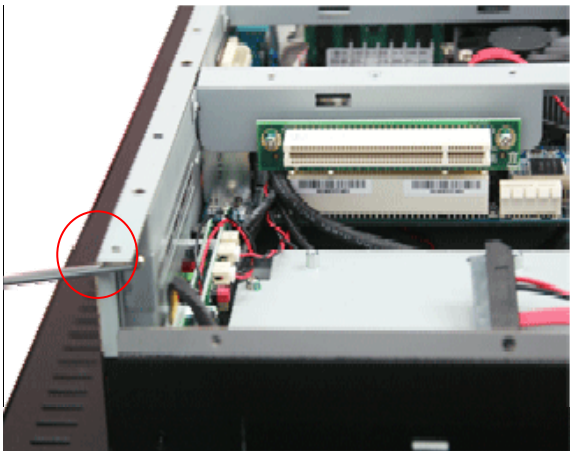
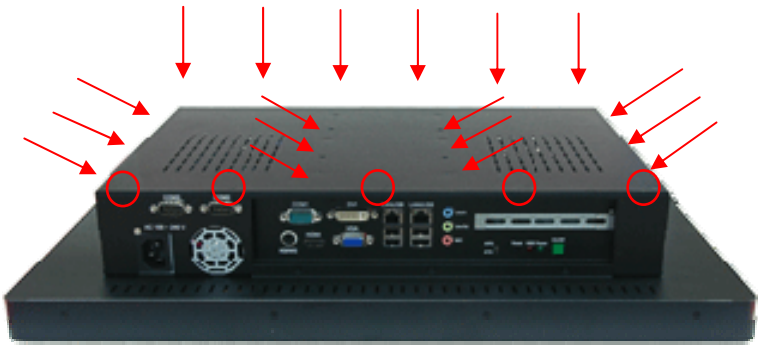


Step 3

Connect the cable to the HDD as shown in the picture, making sure the red stripe of the cable is rightly positioned.

Step 4 Get the four screws as circled tightened to secure the HDD. As shown in the picture	
Step 5 That's how it should look after it has been installed.	

1.4 Installation of PCI Addon

Step 1 There are 23 screws to deal with when enclosing or removing the chassis.	
Step 2 Now slide the addon into the PCI slot, making sure the golden part faces the slot. When both parts that are interfaced together come into the right contact, slightly push the addon into the rail of the slot. This shows the addon is already completely connected.	
Step 3 After sliding the addon into the PCI expansion slot, get the one screws as circled tightened to finish the connection.	
Step 4 To finish the job, just fasten the 23 screws as shown in the picture.	

1.5 Brief Description of the APC-3228

The APC-3228 comes with a 21.5-inch (luminance of 250 cd/m²) TFT LCD. It is powered by an Intel Socket P Core 2 Duo Processor. The industrial panel PC also features one PCI expansion slot, one COM port, four USB 2.0 ports, one 2.5” HDD, one CF slot, power input of AC115/230V, etc. It is ideal for use as a PC-based controller for Industrial Automation & Factory Automation.

Figure 1.2: Front View of APC-3228

Figure 1.3: Rear View of APC-3228

1.6 VESA Mounting of the APC-3228

The APC-3228 panel PC is designed to be VESA mounted as shown in Picture. Just carefully place the unit through the hole and tighten the given 4 screws from the rear to secure the mounting.

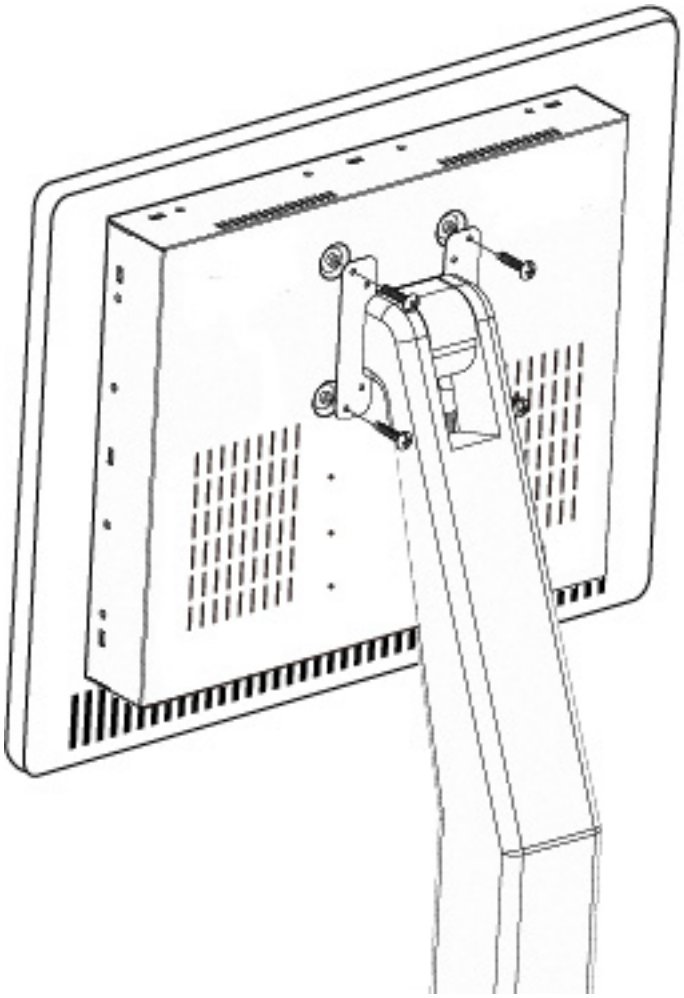


Figure 1.4: VESA mounting of the APC-3228

Chapter 2 Hardware

2.1 Mainboard

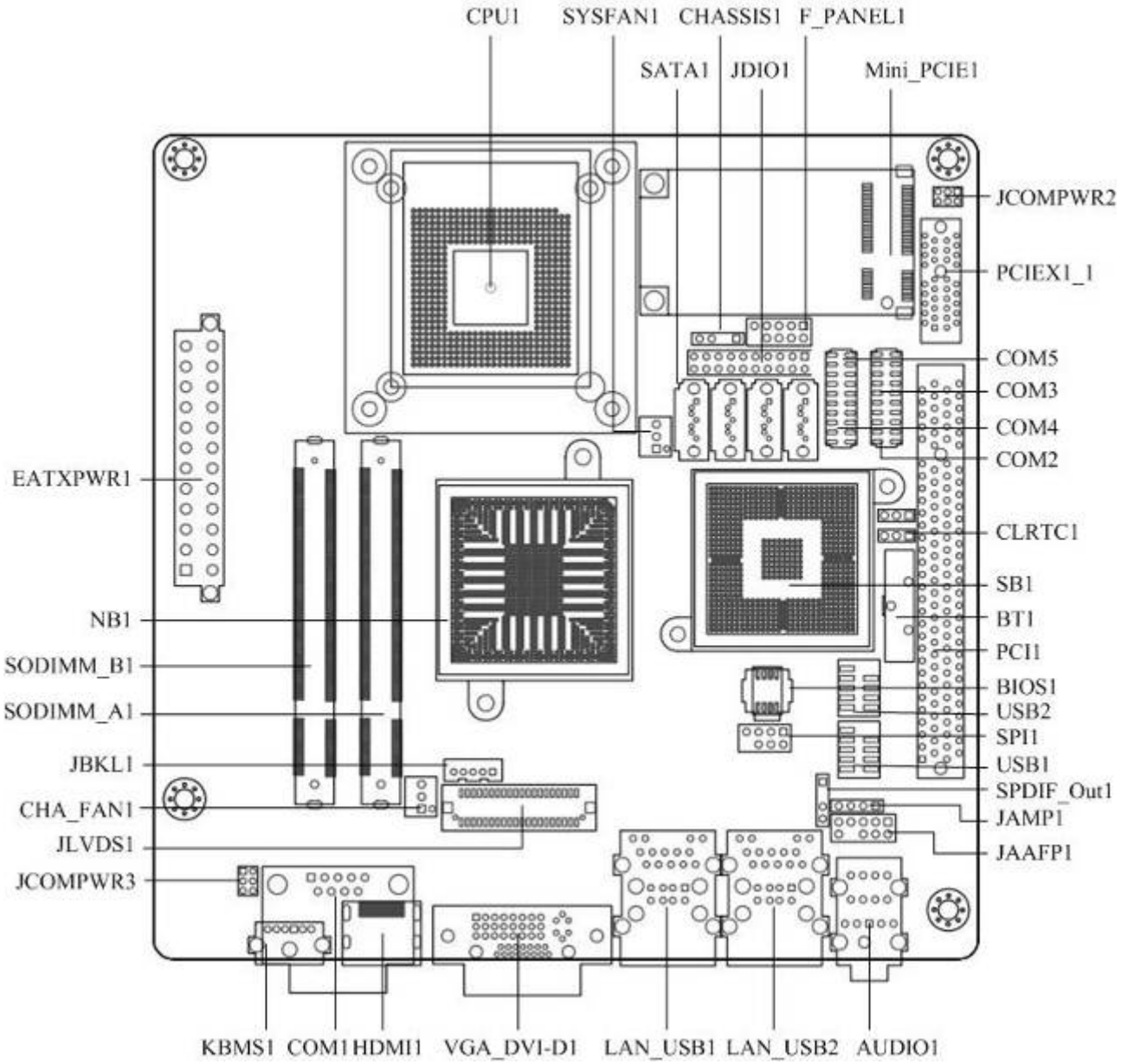


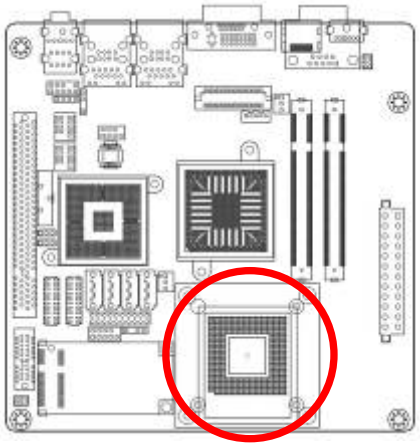
Figure 2.1: Mainboard Overview

2.2 Installations

This section provides information on how to use the jumpers and connectors on the mainboard in order to set up a workable system.

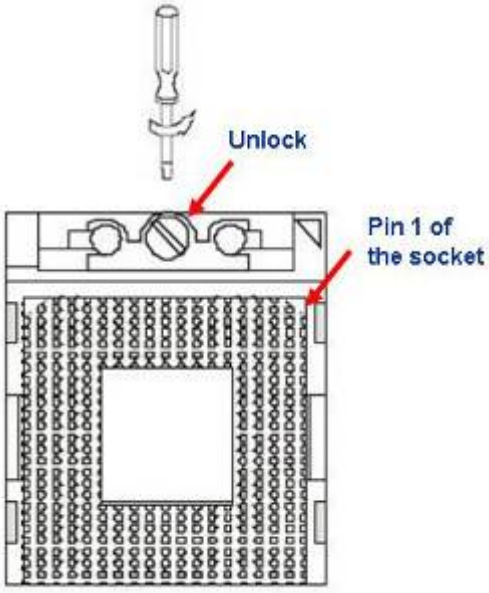
2.2.1 Installing the CPU

1. Locate the CPU socket on the motherboard.

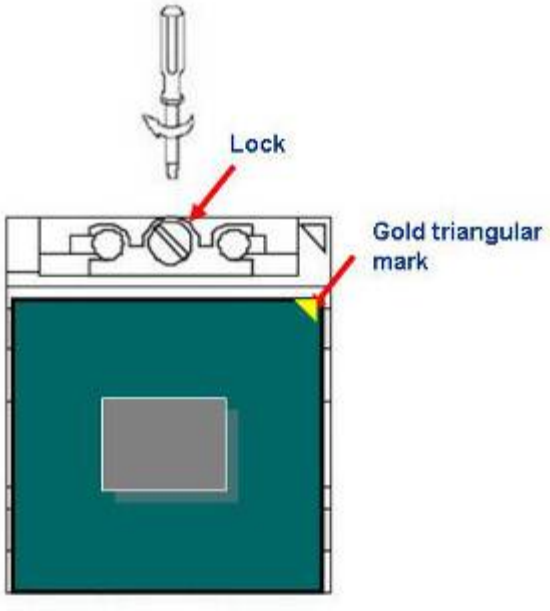


Before installing the CPU, make sure that the socket box is facing towards you.

2. The processor socket comes with a screw to secure the processor, please unlock the screw first.



3. Position the CPU above the socket and the gold triangular mark on the CPU must align with pin 1 of the CPU socket.
4. Carefully insert the CPU into the socket until it fits in place ‘Gold mark’.
5. Turn the screw to the lock position.



The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU.

After installation, make sure to plug-in the ATX power cable to the motherboard.

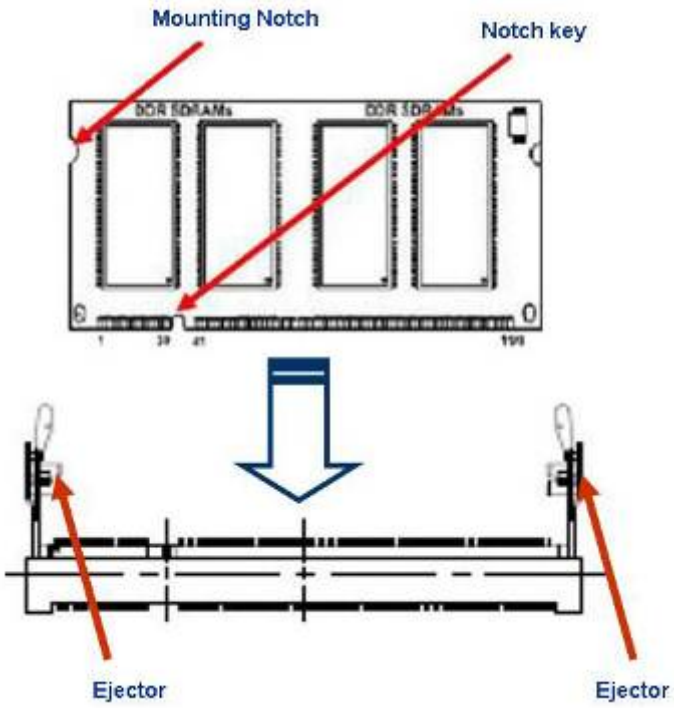
2.2.2 Installing Memory

The mainboard supports two DDR2 memory socket for a maximum total memory of 4GB in DDR2 memory type.

Installing and Removing Memory Modules

Make sure to unplug the power supply before adding or removing SO-DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

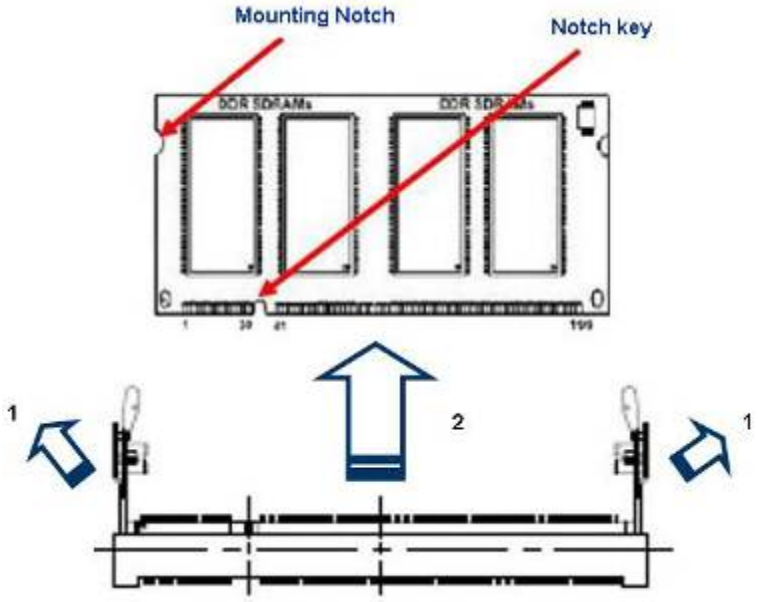
1. Locate the SO-DIMM socket on the board.
2. Hold two edges of the SO-DIMM module carefully, and keep away of touching its connectors.
3. Align the notch key on the module with the rib on the slot.
4. Firmly press the modules into the socket automatically snaps into the mounting notch. Do not force the SO-DIMM module in with extra force as the SO-DIMM module only fit in one direction.



- A DDR2 SO-DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a SO-DIMM into a socket to avoid damaging the SO-DIMM.
- The DDR2 SO-DIMM sockets do not support DDR SO-DIMMs. DO NOT install DDR SO-DIMMs to the DDR2 SO-DIMM socket.

Removing a DDR2 SO-DIMM

1. Press the two ejector tabs on the slot outward simultaneously, and then pull out the SO-DIMM module.



Support the SO-DIMM lightly with your fingers when pressing the ejector tabs. The SO-DIMM might get damaged when it flips out with extra force.

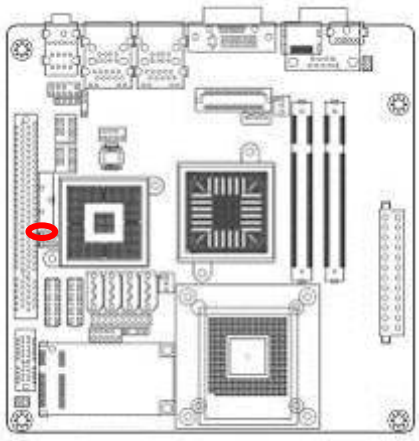
2.2.3 Installing the Jumpers

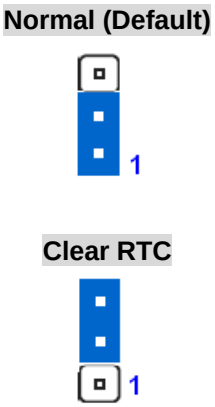
Clear CMOS (CLRTC1)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC
RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords. To erase the RTC RAM:

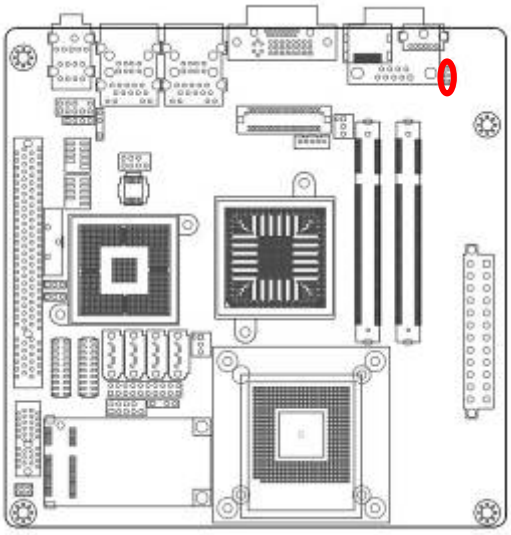
1. Turn OFF the computer and unplug the power cord.
2. Remove the onboard battery.
3. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.
4. Re-install the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

Except when clearing the CMOS, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!



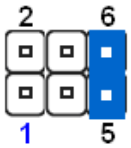


COM1 RI/+5V/+12V Selection (JCOMPWR3)

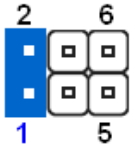


JCOMPWR1

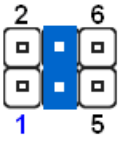
+5V (Default) +



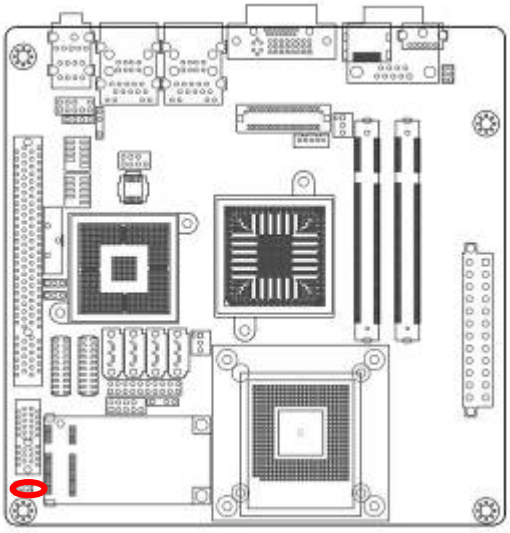
+12V +



Ring +

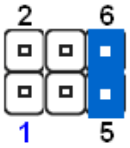


COM2 RI/+5V/+12V Selection (JCOMPWR2)

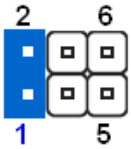


JCOMPWR2

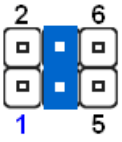
+5V (Default) +



+12V +

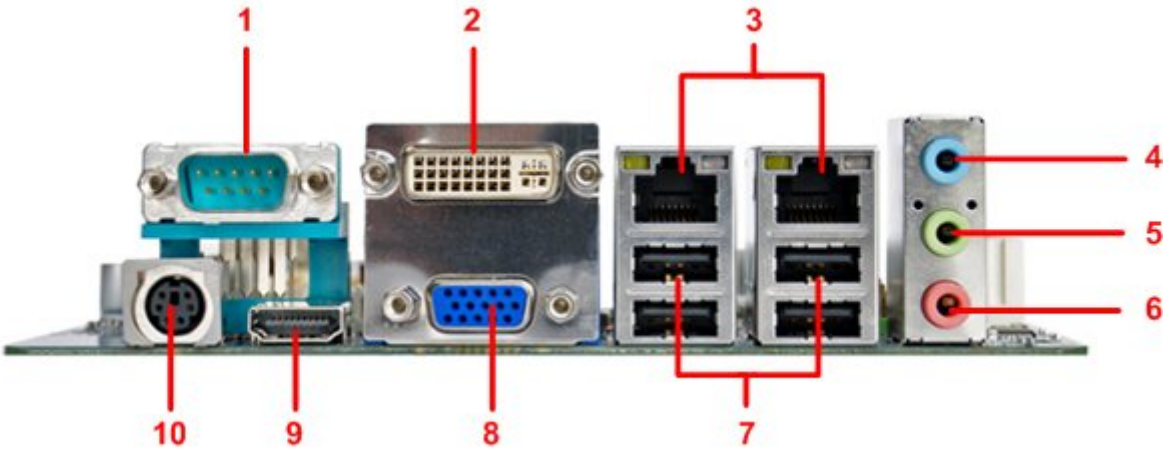


Ring +

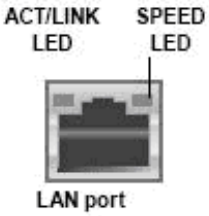


2.2.4 Internal Peripheral Connectors

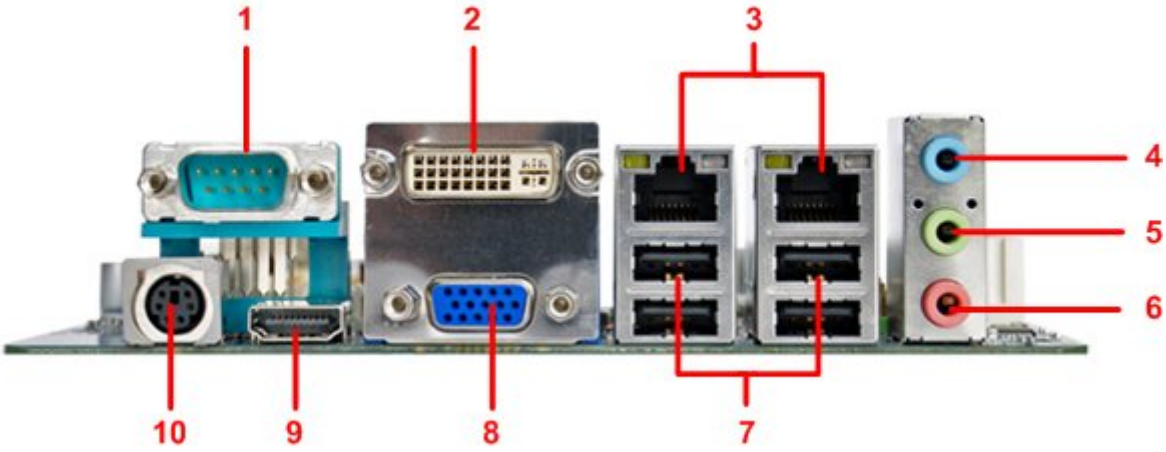
Rear Panel Connectors



No	Label	Function	Description
1	COM1	Serial port connector	D-sub 9-pin, male
2	VGA_DVI-D1	DVI port	Digital Visual Interface connector
3	LAN_USB1, LAN_USB2	LAN (RJ-45) connector	This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications. The optional 10/100/1000 Mbps LAN controller allows 10/100/1000 Mbps connection to a Local Area Network (LAN) through a network hub.



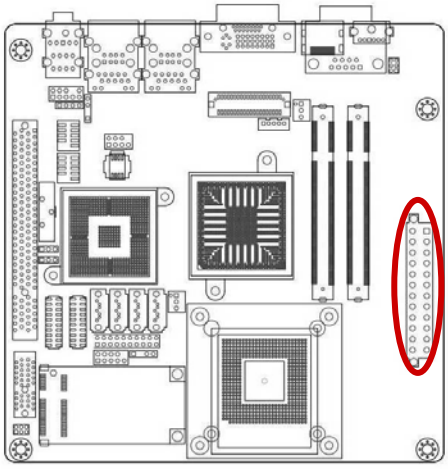
ACT / LINK LED		SPEED LED	
Status	Description	Status	Description
OFF	No link	OFF	10Mbps connection
Orange	Linked	ORANGE	100Mbps connection
Blinking	Data activity	GREEN	1Gbps connection

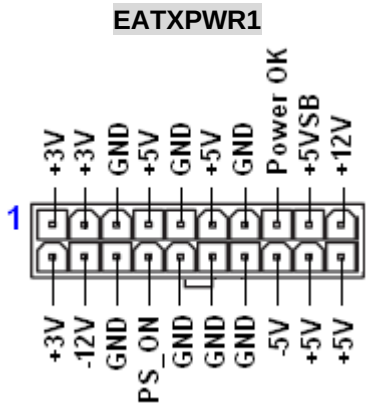


No	Label	Function	Description
4	AUDIO1	Line-In port (Light Blue).	This port connects a tape, CD, DVD player, or other audio sources.
5	AUDIO1	Line-Out port (Lime)	This port connects a headphone or a speaker. In 4-channel, 6-channel, and 8-channel configuration, the function of this port becomes Front Speaker Out.
6	AUDIO1	Microphone port (Pink)	This port connects a microphone.
7	USB1, USB2	USB 2.0 connector	These four 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
8	VGA_DVI-D1	VGA port	D-sub15-pin VGA port connects to a VGA monitor.
9	HDMI1	HDMI connector	High Definition Media Interface 19P connector
10	KBMS1	PS/2 Keyboard/Mouse connector	The standard PS/2 DIN connector is for a PS/2 Keyboard or mouse.

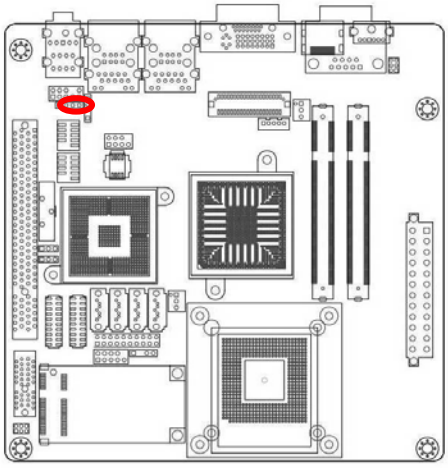
ATX Power Connector (EATXPWR1)

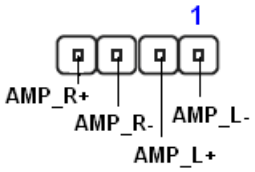
These connectors are for ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.





Amplifier Connector (JAMP1)

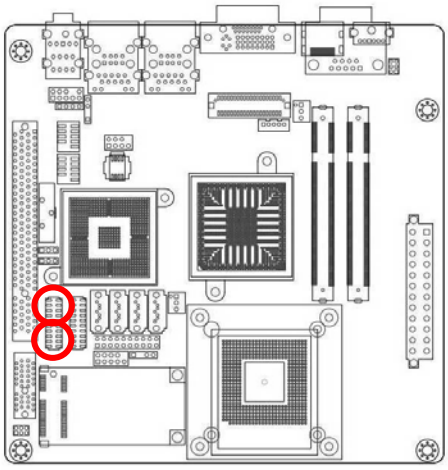


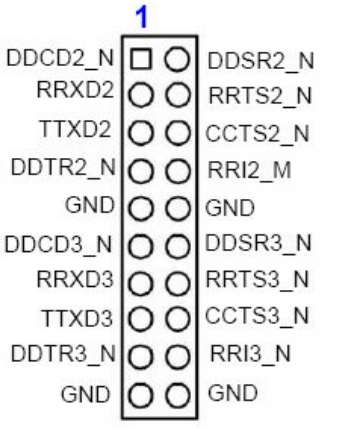


Important notes on the Motherboard Power Requirements

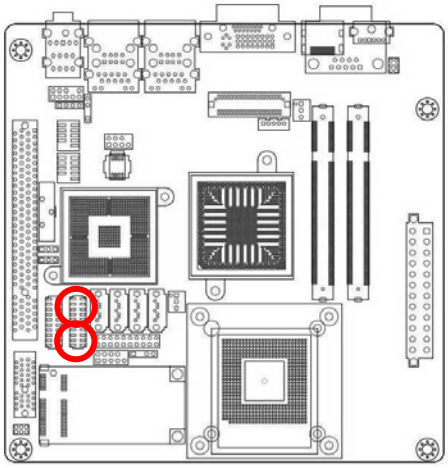
- Make sure that your ATX 12V power supply can provide 8A on the +12V lead and at least 1A on the +5-volt standby lead (+5VSB). The minimum recommended wattage is 230W, or 300W for a fully configured system. The system can become unstable and might experience difficulty powering up if the power supply is inadequate.
- You must install a PSU with a higher power rating if you intend to install additional devices.

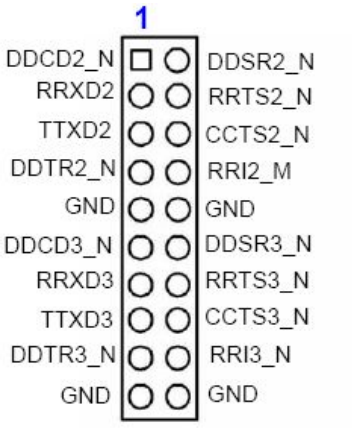
Serial Port 2-3 Connector (COM2, COM3)



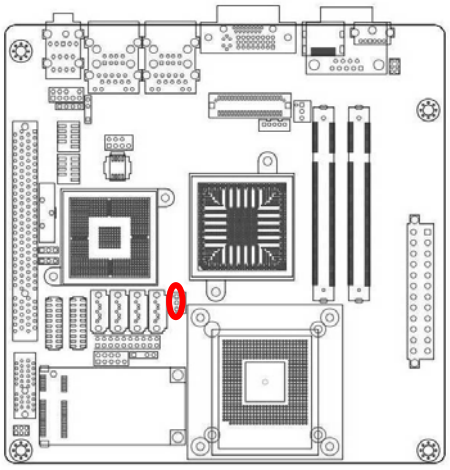


Serial Port 4-5 Connector (COM4,COM5)



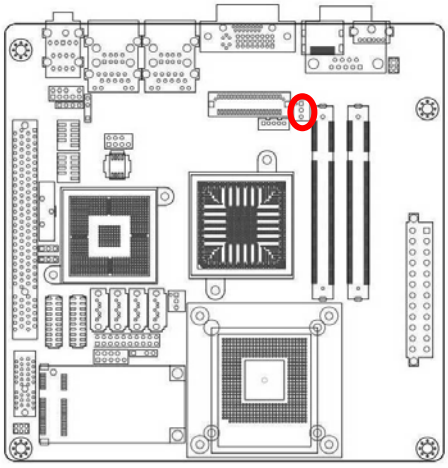


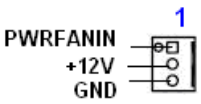
CPU Fan Connector (CPU_FAN1)



- Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components, and hardware monitoring errors can occur if you fail to plug this connector.
- These are not jumpers! DO NOT place jumper caps on the fan connectors.

System Fan Connector (SYS_FAN1)

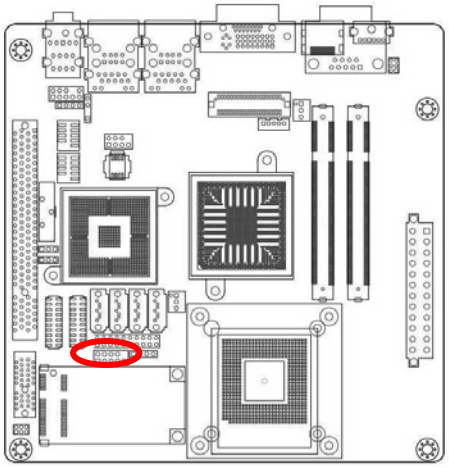


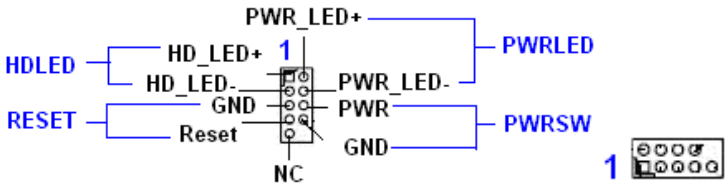


- Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components, and hardware monitoring errors can occur if you fail to plug this connector.
- These are not jumpers! DO NOT place jumper caps on the fan connectors.

System Panel Connector (FPIO1)

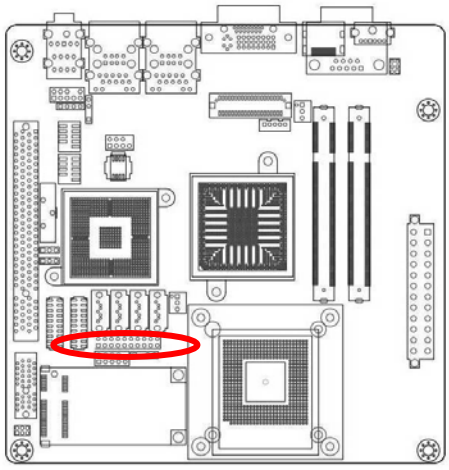
This connector supports several chassis-mounted functions.

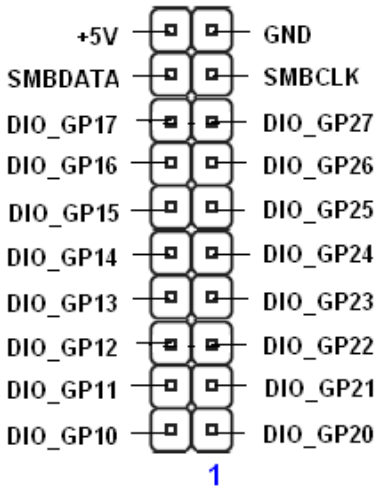




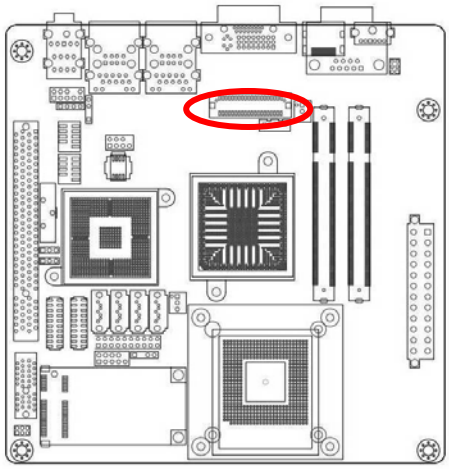
- **System Power LED (2-pin PWRLED)**
  This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.
- **ATX Power Button/Soft-off Button (2-pin PWRSW)**
  This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.
- **Hard Disk Drive Activity LED (2-pin HDLED)**
  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.
- **Reset Button (2-pin RESET)**
  This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

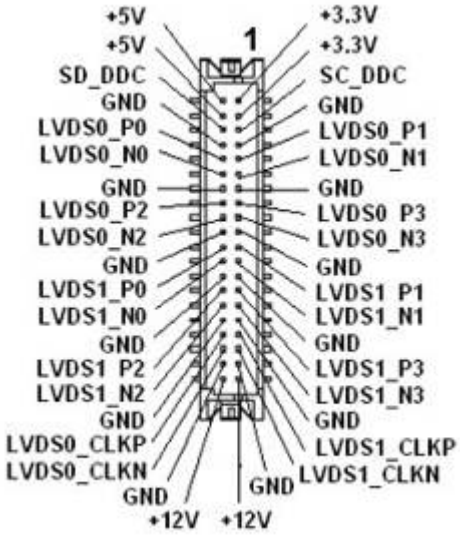
Digital I/O Connector



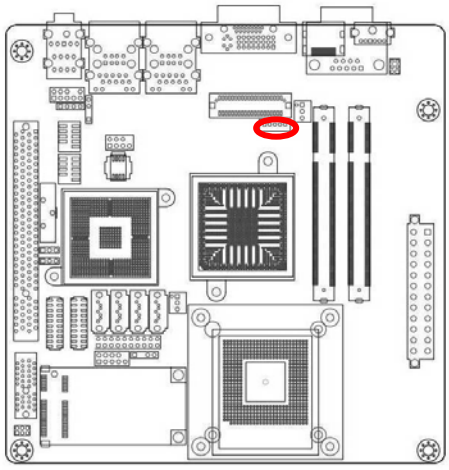


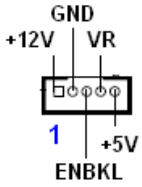
LVDS Connector (JLVDS1)





LCD Inverter Connector (JBKL1)

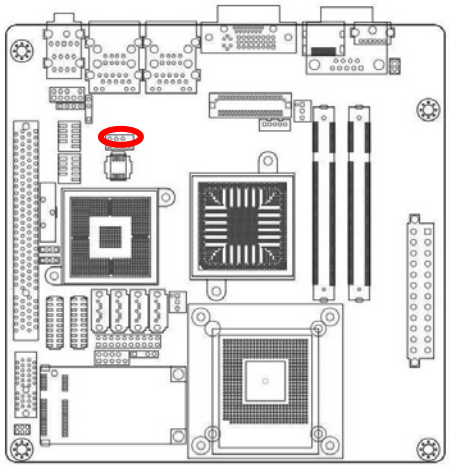


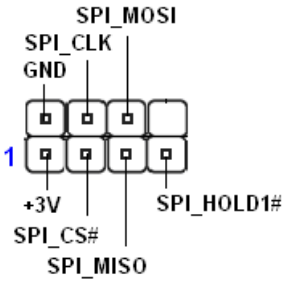


- **Signal Description**

Signal	Signal Description
VR	Bright adjust. Vadj=0.75V ~ 4.25V (Recommended: 4.7KΩ, > 1/16W)
ENBKL	LCD backlight ON/OFF control signal

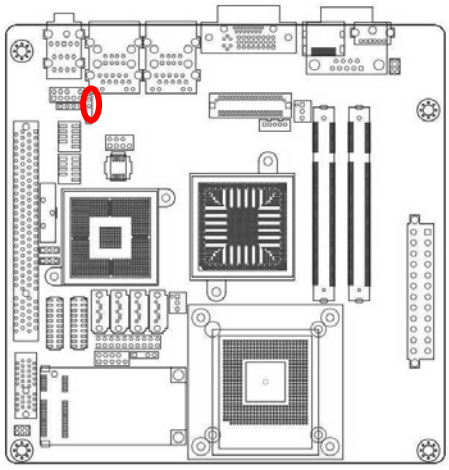
SPI Connector (JSPI1)

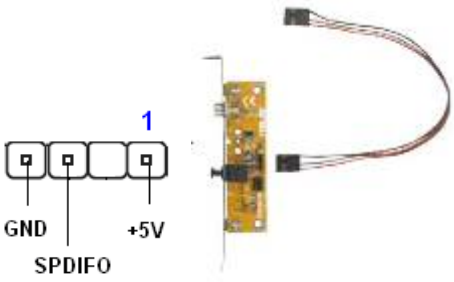




Digital Audio Connector (SPDIF_OUT1)

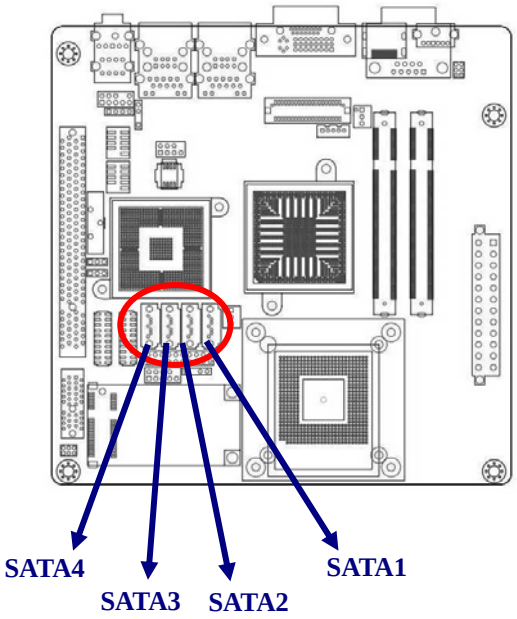
This connector is for an additional Sony/Philips Digital Interface (S/PDIF) port(s). Connect the S/PDIF module cable to this connector, then install the module to a slot opening at the back of the system chassis.

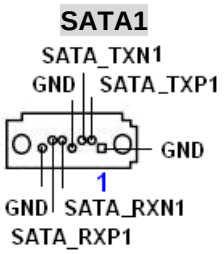


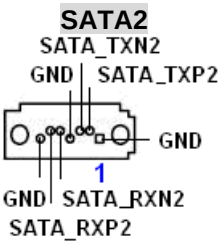


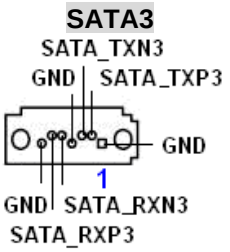
The S/PDIF module is purchased separately.

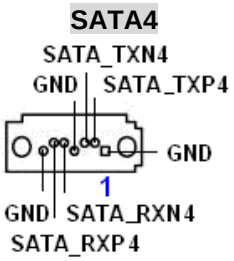
Serial SATA Connector (SATA1, SATA2, SATA3, SATA4)







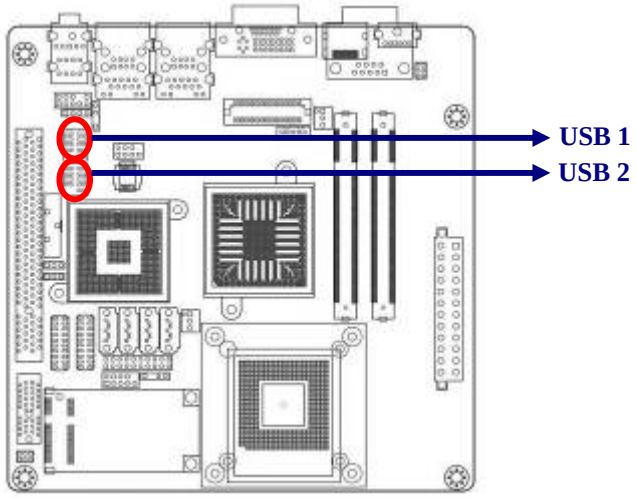


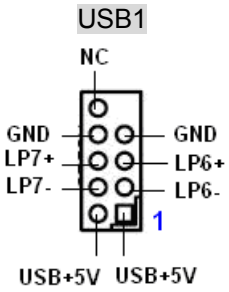


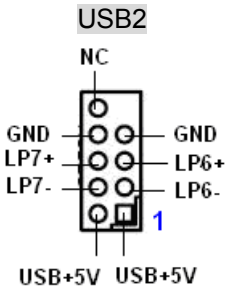
- Install the Windows® 2000 Service Pack 4 or the Windows® XP Service Pack1 before using Serial ATA.
- When using the connectors in Standard IDE mode, connect the primary (boot) hard disk drive to the SATA1 connector.

USB 2.0 Connector (USB1, USB2)

These connectors are for USB 2.0 ports. Connect the USB/GAME module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.







Never connect a **1394 cable** to the USB connectors. Doing so will damage the motherboard!

The USB module is purchased separately.

Chapter 3 BIOS Setup

3.1 Introduction

3.1.1 BIOS setup program

The main BIOS setup menu is the first screen that you can navigate. Each main BIOS setup menu option is described in this user's guide.

The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. "Grayed-out" options cannot be configured. Options is blue can be.
The right frame displays the key legend. Above the key legend is an area reserved for a text message.
When an option is selected in the left frame, it is highlighted in white.
Often a text message will accompany it.

- The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the **Load Default Settings** item under the Exit Menu. See section "2.9 Exit Menu."
- The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
- Visit the Advansus website to download the latest BIOS file for this motherboard.

3.1.2 Legend Box

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.
These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.
The keys in the legend bar allow you to navigate through the various setup menus.

Key(s)	Function Description
←, → Left/Right	The *Left and Right* <Arrow> keys allow you to select an setup screen. For example: Main screen, Advanced screen, Chipset screen, and so on.
↑, ↓ Up/Down	The *Up and Down* <Arrow> keys allow you to select an setup item or sub-screen.
+, - Plus/Minus	The *Plus and Minus* <Arrow> keys allow you to change the field value of a particular setup item.

	For example: Date and Time.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display the *General Help screen*. Press the <F1> key to open the *General Help screen*.
F10	The <F10> key allows you to save any changes you have made and exit Setup. Press the <F10> key to save your changes.
ESC	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

3.1.3 List Box

This box appears only in the opening screen. The box displays an initial list of configurable items in the menu you selected.

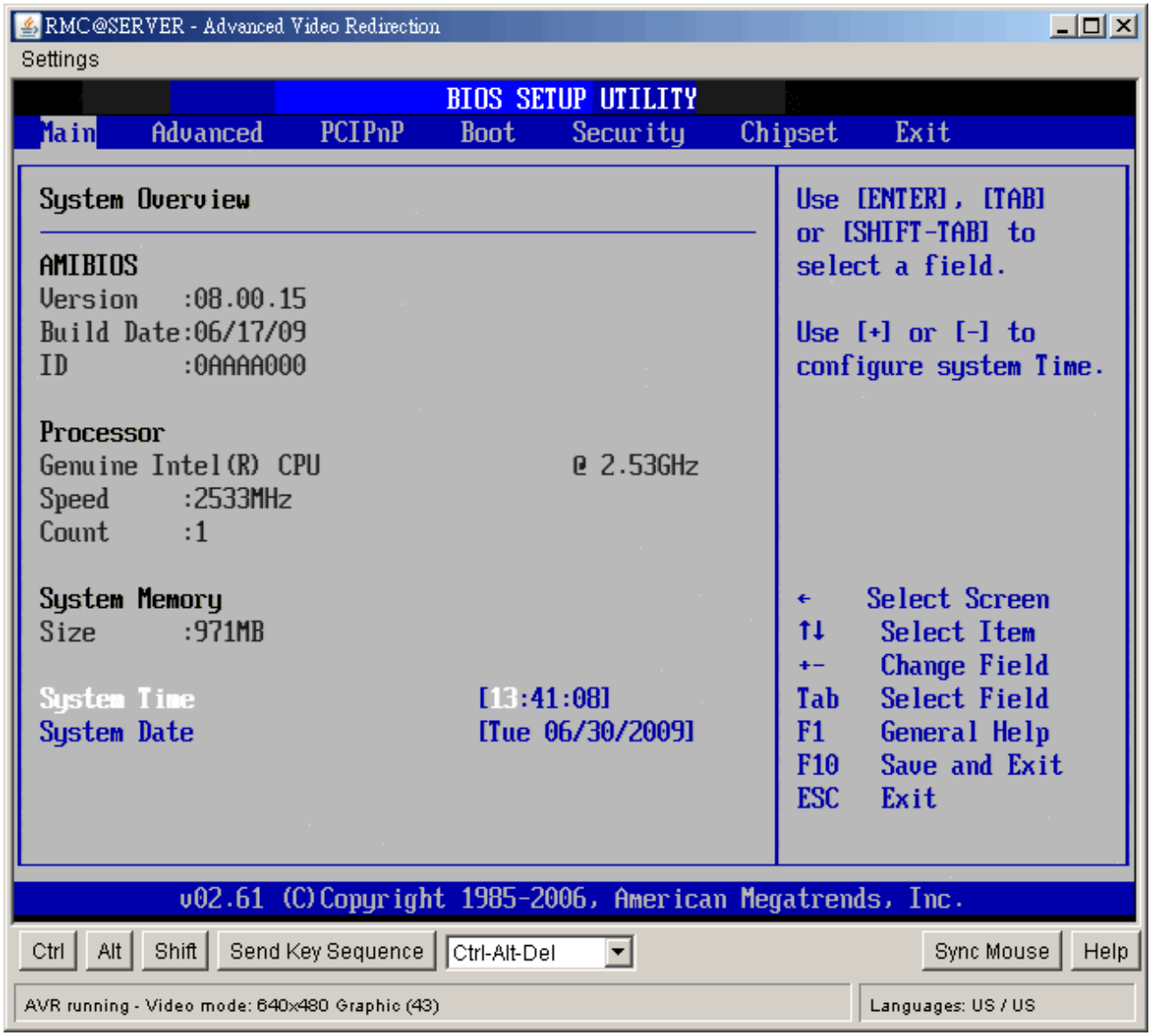
3.14 Sub-menu

Note that a right pointer symbol (▶) appears to the left of certain fields. This pointer indicates that you can display a sub-menu from this field. A sub-menu contains additional options for a field parameter. To display a sub-menu, move the highlight to the field and press <Enter>. The sub-menu appears. Use the legend keys to enter values and move from field to field within a sub-menu as you would within a menu. Use the <Esc> key to return to the main menu.

Take some time to familiarize yourself with the legend keys and their corresponding functions. Practice navigating through the various menus and submenus. While moving around through the Setup program, note that explanations appear in the Item Specific Help window located to the right of each menu. This window displays the help text for the currently highlighted field.

3.2 Main Setup

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the *Main* tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.



- **System Time/System Date**

Use this option to change the system time and date. Highlight *System Time* or *System Date* using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

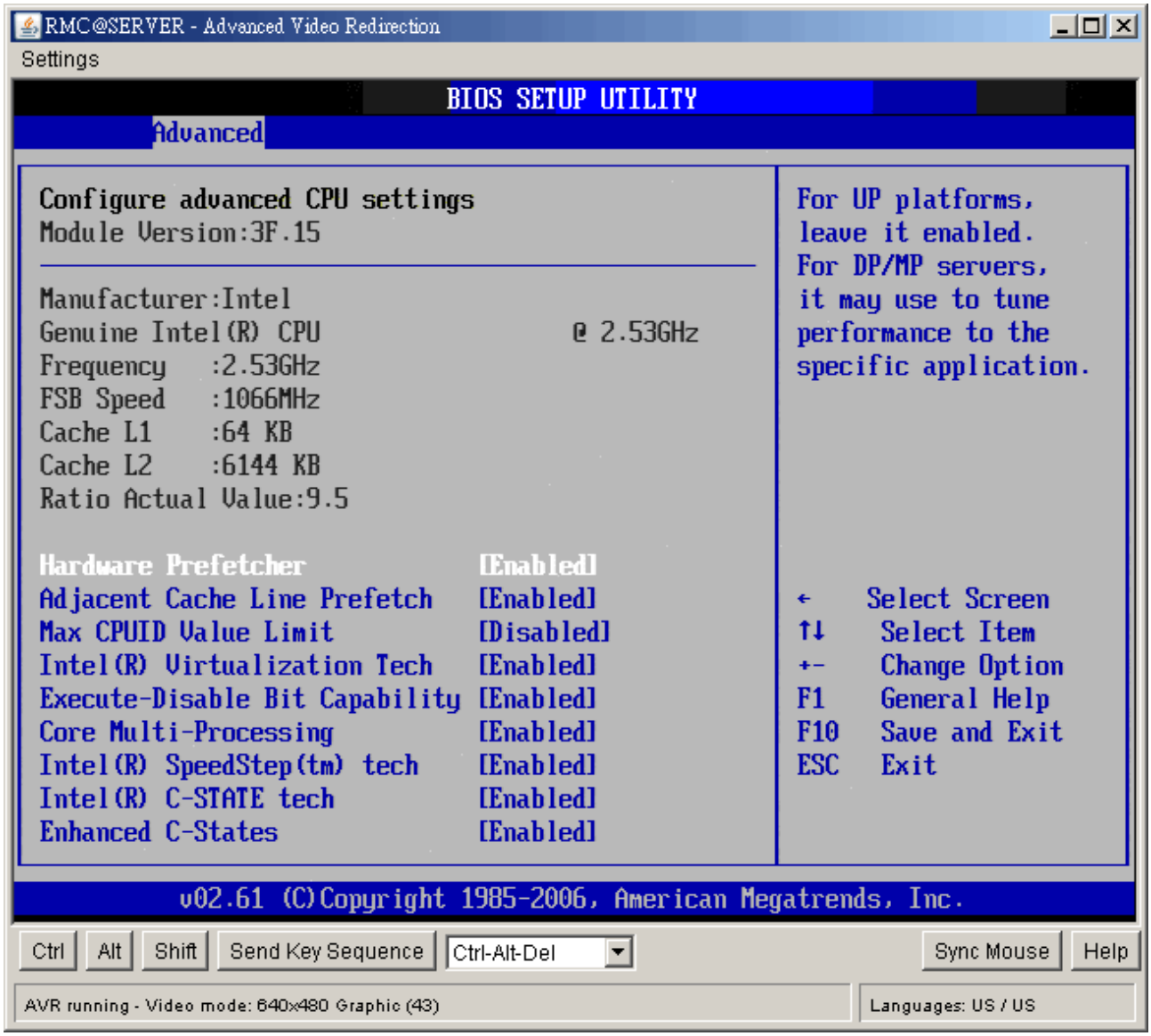
Note: The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00, and 5:30P.M. as 17:30:00.

3.3 Advanced BIOS Setup

Select the *Advanced* tab from the setup screen to enter the Advanced BIOS Setup screen.
You can select any of the items in the left frame of the screen, such as SuperIO Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screen is shown below.
The sub menus are described on the following pages.

CPU Configuration Setting

You can use this screen to select options for the CPU Configuration Settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages.



- **Hardware Prefetcher**

The choices of Hardware Prefetcher which prefetchs data from memory to L2 cache are Disabled, and Enabled.

- **Adjacent Cache Line Prefetch**

The choices of Adjacement Cache Line Prefetch which automatically fetches an extra 64-byte cache line are Enabled, Disabled.

- **Max CPUID Value Limit**

The choices of Max CPUID Value Limit are Disabled, and Enabled.

- **Intel® Virtualization Tech**

The choices of Intel® Virtualization Tech are Enabled, Disabled.

- **Execute-Disable Bit Capability**

The choices of Execute-Disable Bit Capability are Enabled, Disabled.

- **Core Multi-Processing**

The item is to enable or disable the Core Multi-processing function.

- **Intel® SpeedStep™ tech**

The choices of Execute-Disable Bit Capability are Enabled, Disabled.

- **Intel® C-State tech**

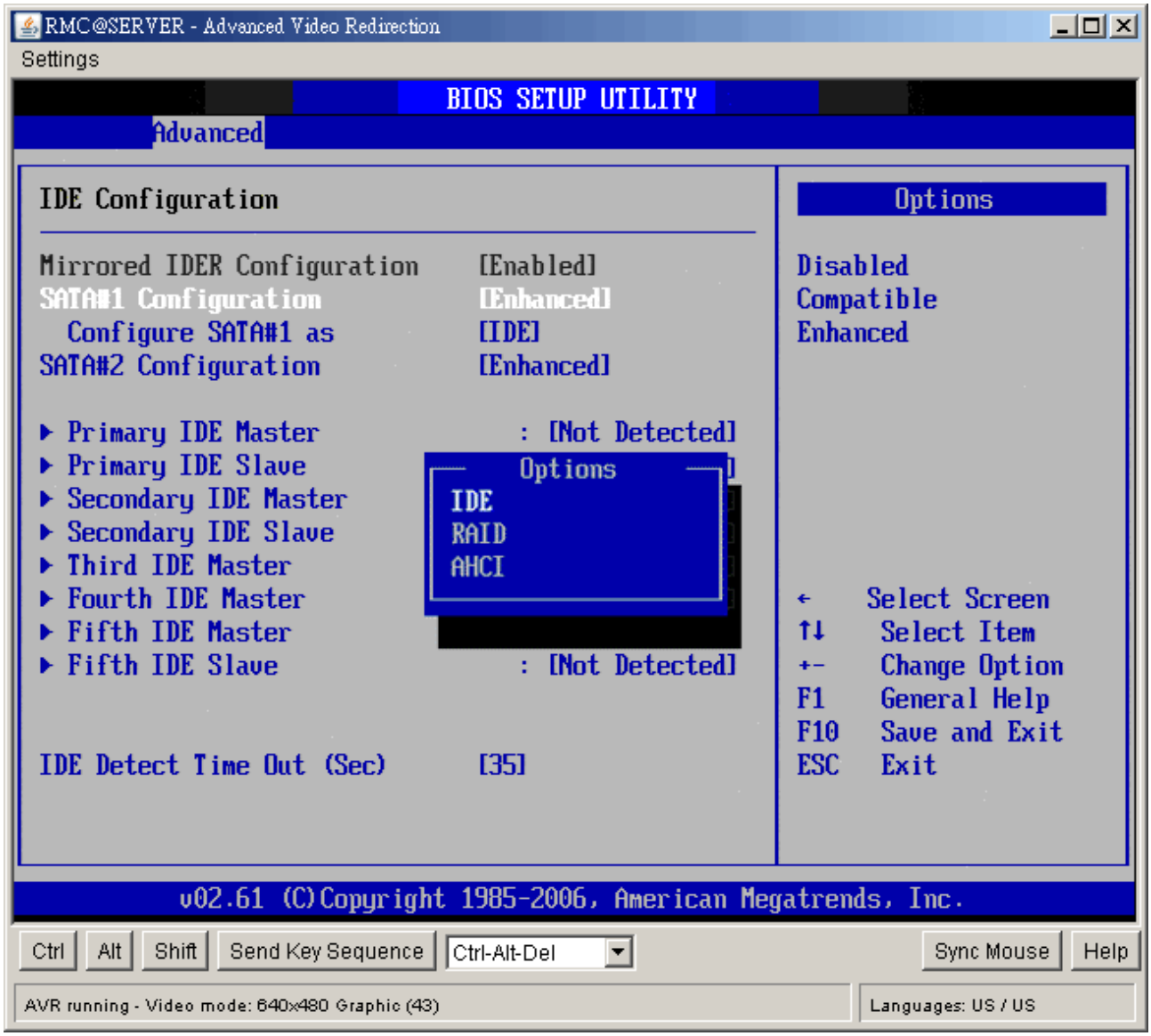
The choices of Execute-Disable Bit Capability are Enabled, Disabled.

- **Enhanced C-States**

The choices of Execute-Disable Bit Capability are Enabled, Disabled.

IDE Configuration Setting

You can use this screen to select options for the IDE Configuration Settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on the following pages.



- **Mirrored IDER Configuration**

The choices of Mirrored IDER configuration are Disabled, and Enabled.

- **SATA#1 Configuration**

The choices of SATA configuration are Disabled, Compatible, and Enhanced.

- **Configure SATA #1 as**

This item allows to configure SATA as IDE, RAID, or AHCI.

- **SATA#2 Configuration**

The choices of SATA configuration are Disabled and Enhanced.

- **Primary/Secondary IDE Master/Slave, Third/Fourth IDE Master, Fifth IDE Master/Slave**
  Select one of the hard disk drives to configure it. Press <Enter> to access its the sub menu. The options on the sub menu are described in the following sections.

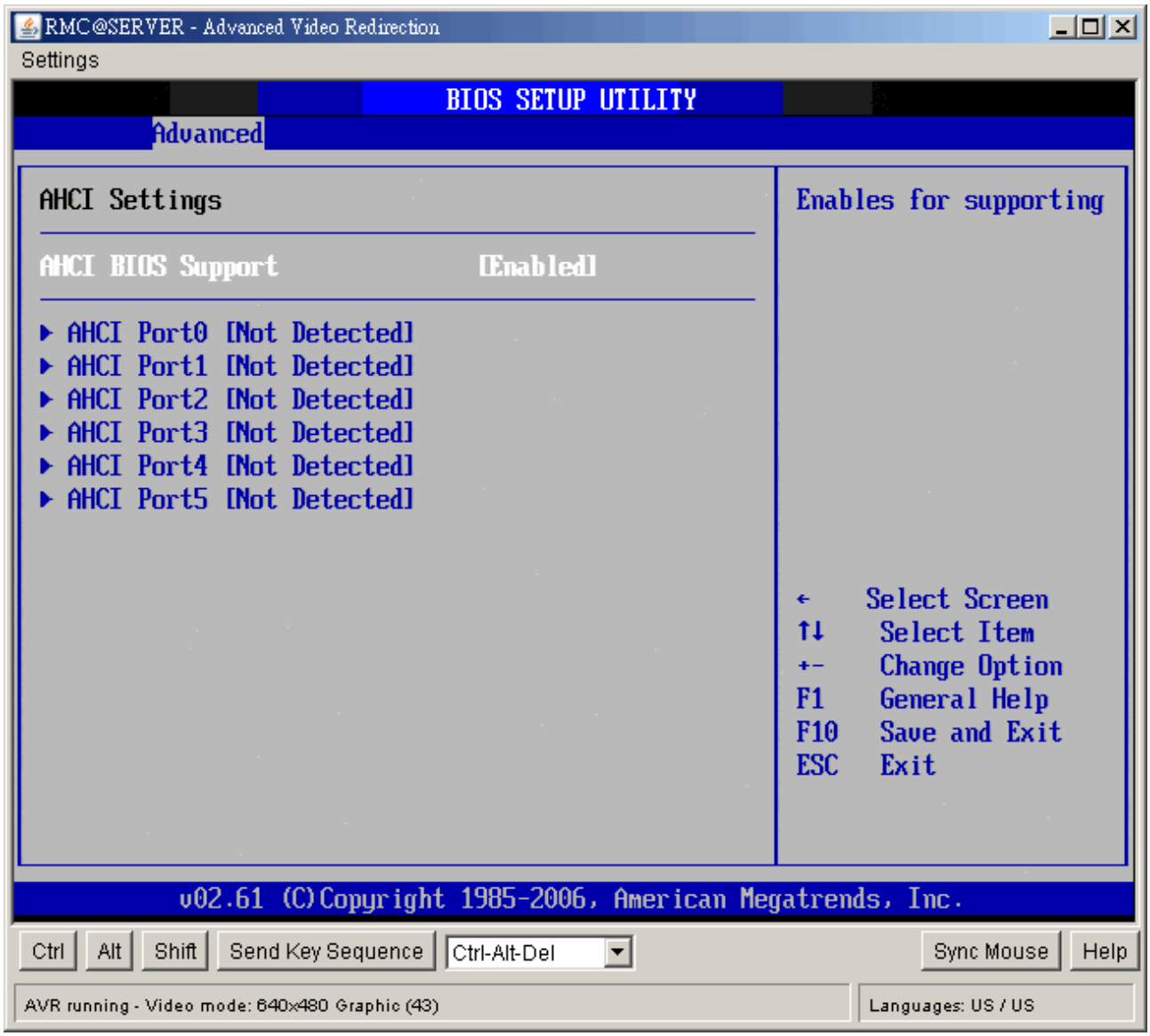
- **IDE Detect Time Out (Sec)**

Set this option to stop the AMIBIOS from searching for IDE devices within the specified number of seconds. Basically, this allows you to fine-tune the settings to allow for faster boot times. Adjust this setting until a suitable timing that can detect all IDE disk drives attached is found.
The default setting is *35*.

Option	Description
0	This value is the best setting to use if the onboard IDE controllers are set to a specific IDE disk drive in the AMIBIOS.
5	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in five seconds. A large majority of ultra ATA hard disk drives can be detected well within five seconds.
10	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 10 seconds.
15	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 15 seconds.
20	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 20 seconds.
25	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 25 seconds.
30	Set this value to stop the AMIBIOS from searching the IDE bus for IDE disk drives in 30 seconds.
35	35 is the default value. It is the recommended setting when all IDE connectors are set to AUTO in the AMIBIOS setting.

Note: Different IDE disk drives take longer for the BIOS to locate than others do.

AHCI Configuration



- **AHCI BIOS Support**
  Enables for supporting AHCI BIOS. The choices are Enabled or Disabled.

Super I/O Configuration

You can use this screen to select options for the Super I/O settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.

- **Serial Port1 Address**

This option specifies the base I/O port address and Interrupt Request address of serial port 1. The Optimal setting is *3F8/IRQ4*.

Option	Description
Disabled	Set this value to prevent the serial port from accessing any system resources. When this option is set to *Disabled*, the serial port physically becomes unavailable.
3F8/IRQ4	Set this value to allow the serial port to use 3F8 as its I/O port address and IRQ4 for the interrupt address. This is the default setting. The majority of serial port 1 or COM1 ports on computer systems use IRQ4 and I/O Port 3F8 as the standard setting. The most common serial device connected to this port is a mouse. If the system will not use a serial device, it is best to set this port to

	Disabled.

- **Serial Port2 Address**

This option specifies the base I/O port address and Interrupt Request address of serial port 2. The Optimal setting is *2F8/IRQ3*.

Option	Description
Disabled	Set this value to prevent the serial port from accessing any system resources. When this option is set to *Disabled*, the serial port physically becomes unavailable.
2F8/IRQ3	Set this value to allow the serial port to use 2F8 as its I/O port address and IRQ 3 for the interrupt address. This is the default setting. The majority of serial port 2 or COM2 ports on computer systems use IRQ3 and I/O Port 2F8 as the standard setting. The most common serial device connected to this port is an external modem. If the system will not use an external modem, set this port to *Disabled*. **Note:** Most internal modems require the use of the second COM port and use 3F8 as its I/O port address and IRQ 4 for its interrupt address. This requires that the Serial Port2 Address be set to *Disabled* or another base I/O port address and Interrupt Request address.

- **Serial Port3 Address**

This option specifies the base I/O port address of serial port 3. The Optimal setting is *3E8*.

- **Serial Port3 IRQ**

This option specifies the Interrupt Request address of serial port 3. The Optimal setting is *10*.

Option	Description
Disabled	Set this value to prevent the serial port from accessing any system resources. When this option is set to *Disabled*, the serial port physically becomes unavailable.
3E8/IRQ10	Set this value to allow the serial port to use 3E8 as its I/O port address and IRQ10 for the interrupt address. This is the default setting. If the system will not use a serial device, it is best to set this port to Disabled.

- **Serial Port4 Address**

This option specifies the base I/O port address of serial port 4. The Optimal setting is *2E8*.

- **Serial Port4 IRQ**

This option specifies the Interrupt Request address of serial port 4. The Optimal setting is *11*.

Option	Description
Disabled	Set this value to prevent the serial port from accessing any system resources. When this option is set to *Disabled*, the serial port physically becomes unavailable.

2E8/IRQ11	Set this value to allow the serial port to use 2E8 as its I/O port address and IRQ11 for the interrupt address. This is the default setting. If the system will not use a serial device, it is best to set this port to Disabled.

- **Serial Port5 Address**

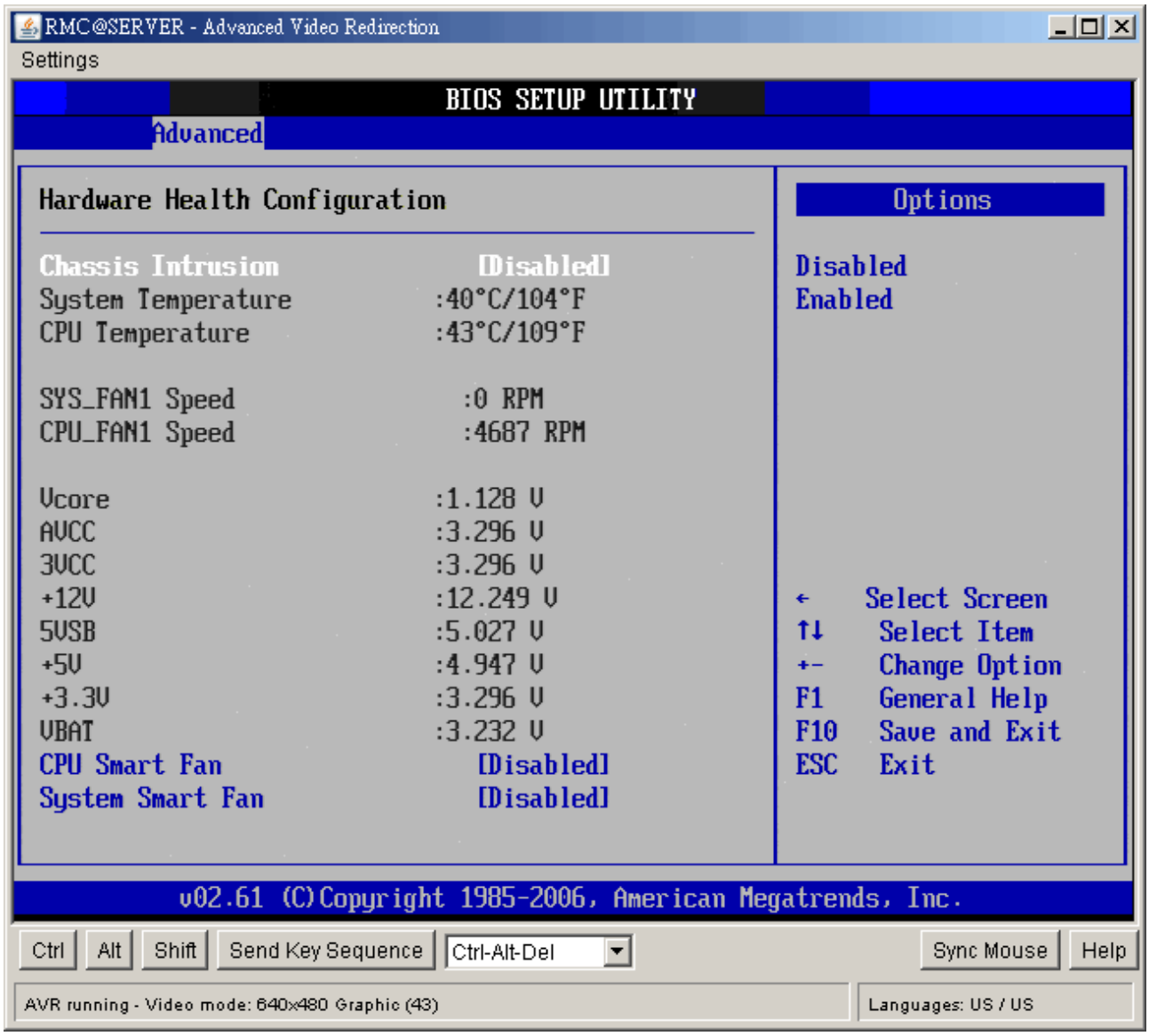
This option specifies the base I/O port address of serial port 5. The Optimal setting is *2E0*.

- **Serial Port5 IRQ**

This option specifies the Interrupt Request address of serial port 5. The Optimal setting is *5*.

Option	**Description**
Disabled	Set this value to prevent the serial port from accessing any system resources. When this option is set to *Disabled*, the serial port physically becomes unavailable.
2E0/IRQ5	Set this value to allow the serial port to use 2E0 as its I/O port address and IRQ5 for the interrupt address. This is the default setting. If the system will not use a serial device, it is best to set this port to Disabled.

You can use this screen to select options for the Hardware Health settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.



- **Chassis Intrusion**
  This item selects the chassis intrusion. The choices are Disabled or Enabled.
- **System Temperature**

This shows you the current temperature of system.

- **CPU Temperature**

This shows you the current CPU temperature.

- **SYS_FAN Speed**

This shows the current System FAN operating speed.

- **CPU_FAN Speed**

This shows the current CPU FAN operating speed.

- **Vcore/ 3VCC/ +12V/ +5V/ 5VSB/ 3VSB/ VBAT**

This shows the voltage of VCORE, 3VCC, +12V, +5V, 5VSB(V), 3VSB(V) and VBAT(V).

- **CPU Smart Fan**

The options are Disabled, Silent mode, Optimal mode and Performance mode.

- **System Smart Fan**

The options are Disabled, Silent mode, Optimal mode and Performance mode.

ACPI Configuration

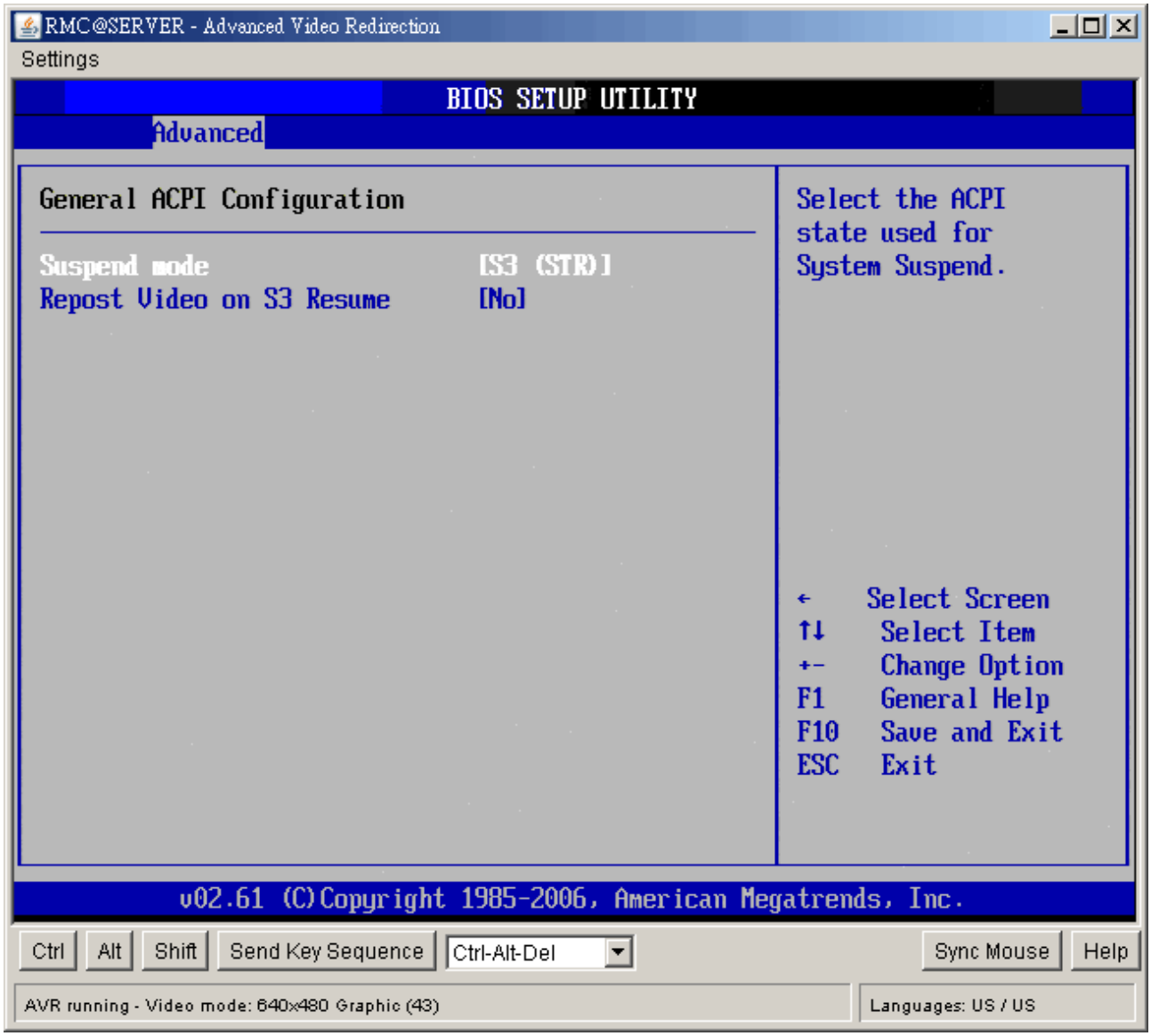
You can use this screen to select options for the ACPI settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.

- **General ACPI Configuration**

This item allows you to set general ACPI Configuration.

- **Chipset ACPI Configuration**

This item allows you to set South Bridge ACPI Configuration.



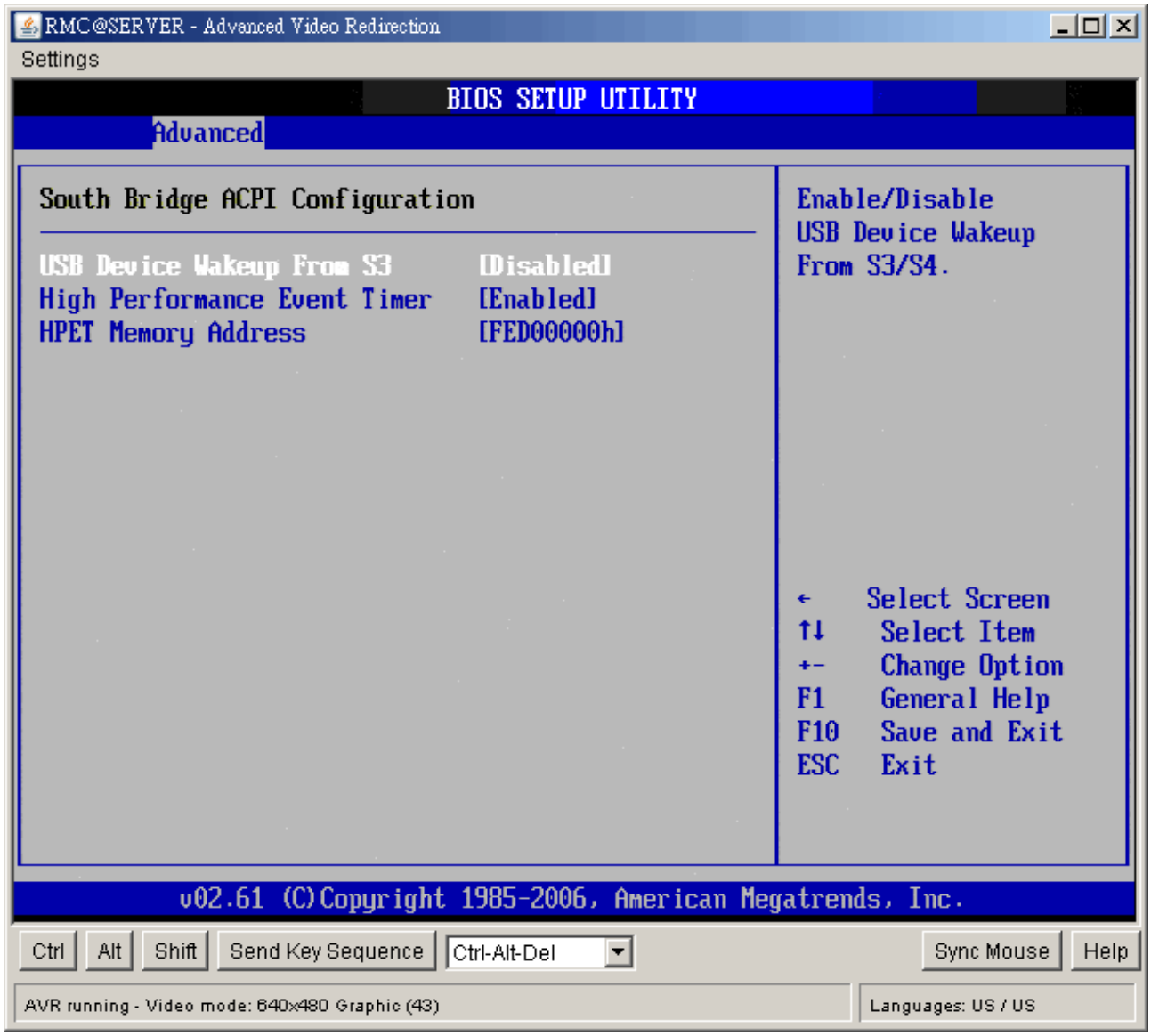
- **Suspend mode**

The item allows you to select the suspend type under the ACPI operating system.

Option	Description
S1 (POS)	Power on Suspend
S3 (STR)	Suspend to RAM
Auto	POS+STR

- **Repost Video on S3 Resume**

Determines whether to invoke VGA BIOS post on S3/STR resume. The choices are No or Yes.



- **USB Device Wakeup from S3**

This item allows you to enable or disabled the USB resume from S3/S4 status.

- **High Performance Event Timer**

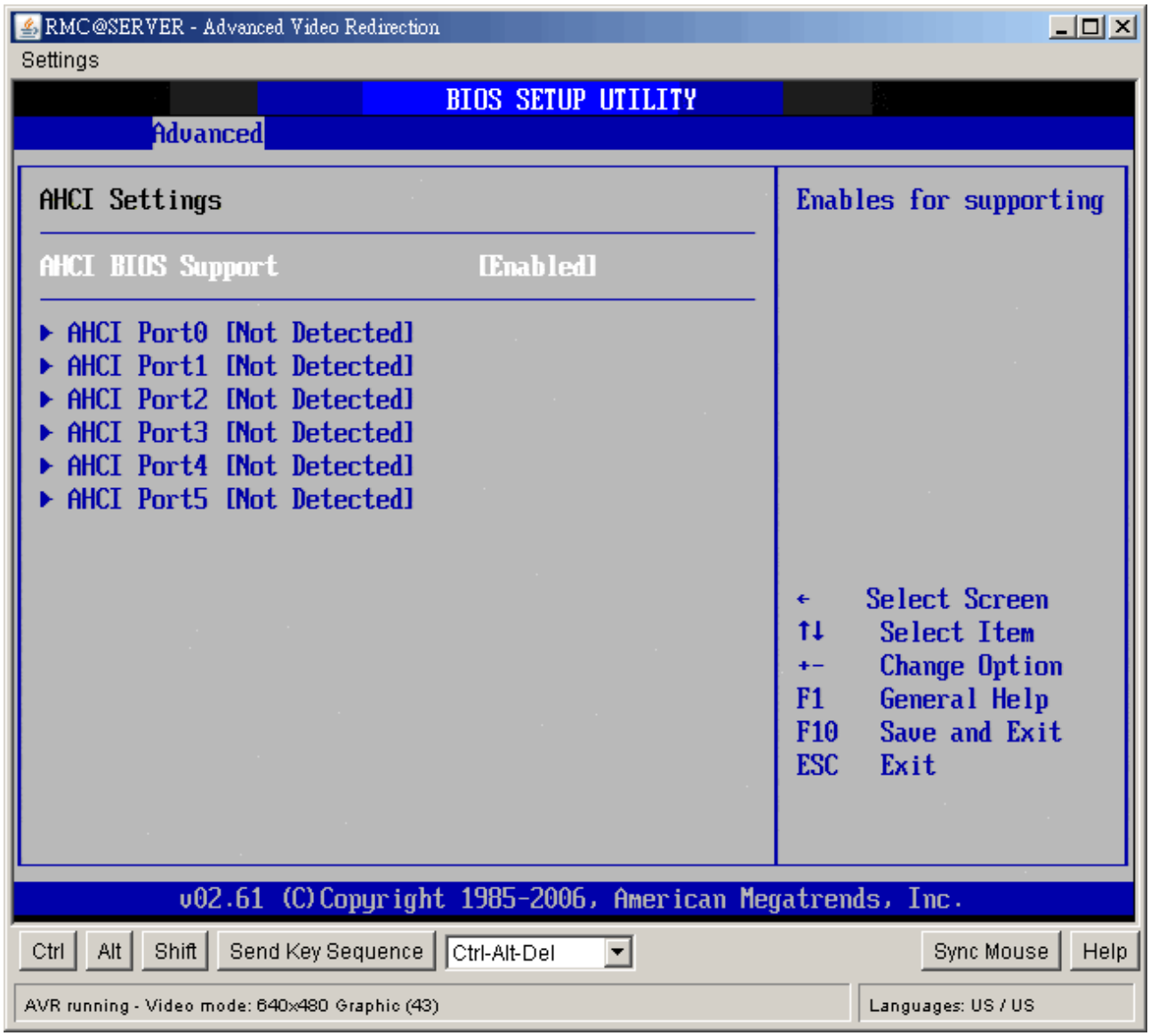
This item allows you to enable or disable the High Performance Event Timer.

- **HPET Memory Address**

This item allows you to allot the Event Timer Block Registers Base Address to thememory.

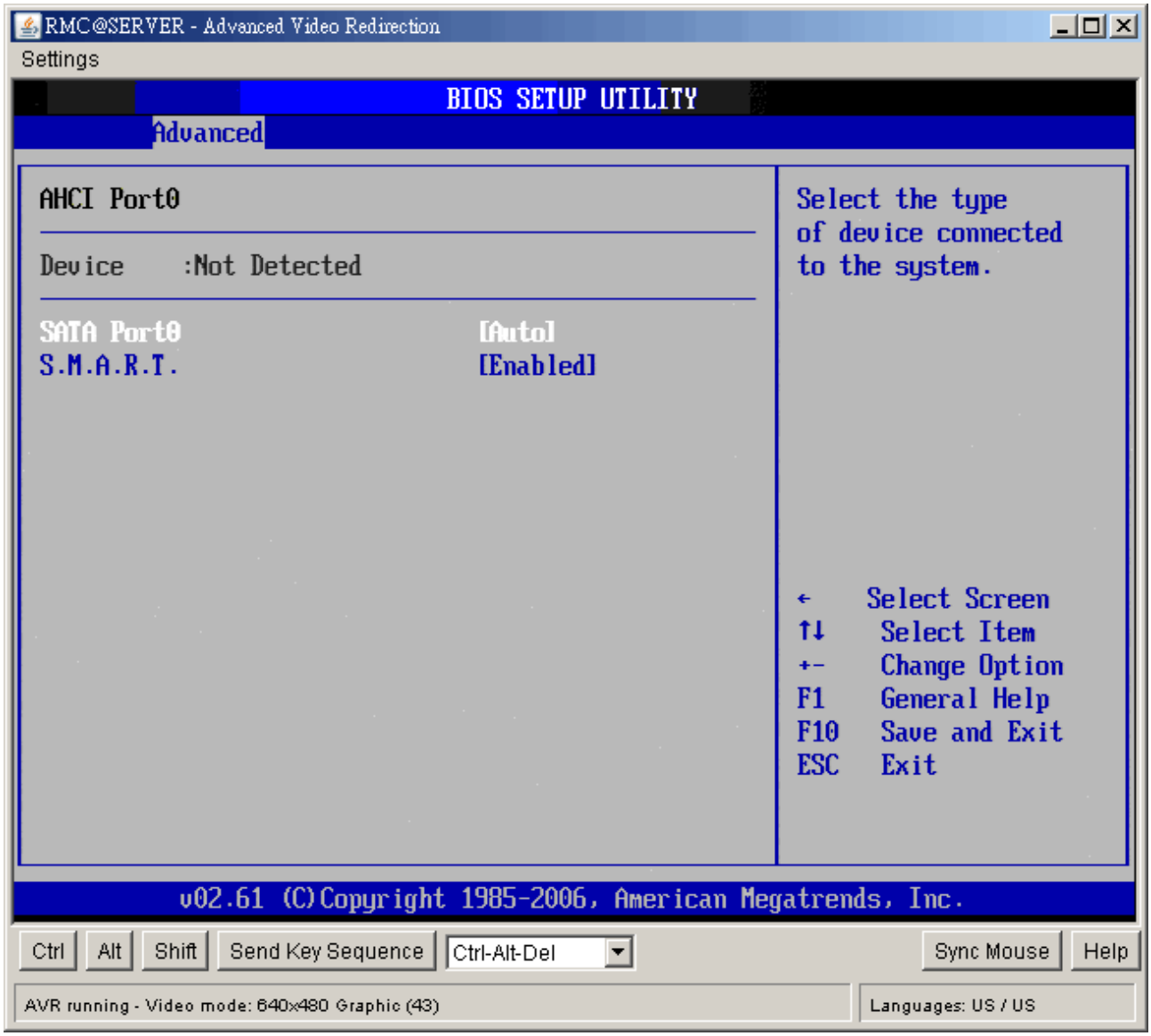
AHCI Configuration

You can use this screen to select options for the AHCI settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.



- **AHCI BIOS Support**

This BIOS feature controls the AHCI function of SATA controller. The choice are Enabled (Default) / Disabled



- **Device**

This area shows the detected connected device.

- **SATA Port0/1/2/3/4/5**

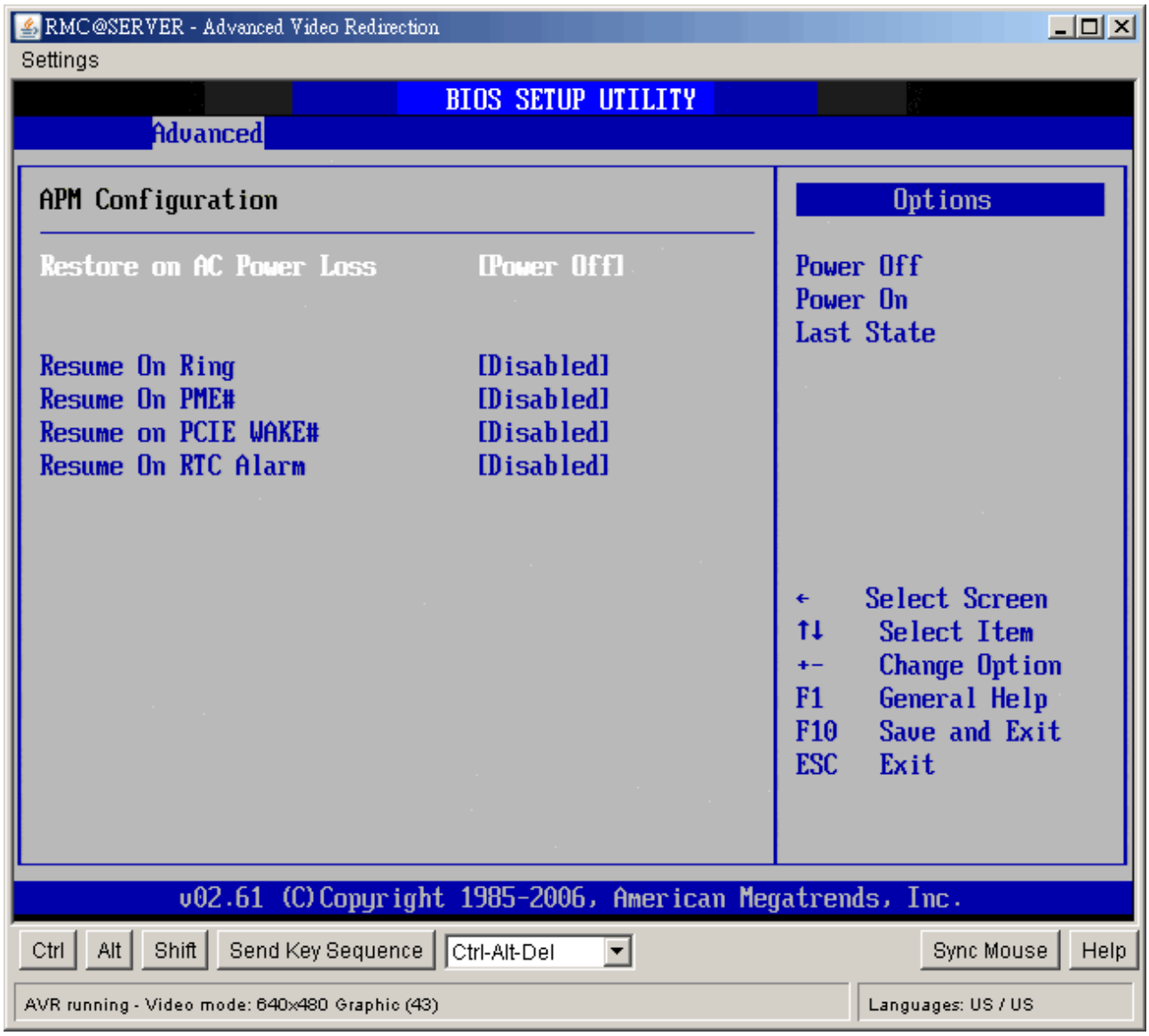
This item allows you to select the connected device type. Options: Auto (Default)

- **S.M.A.R.T.**

This item allows you to control the device S.M.A.R.T function. The options are Enabled (Default) / Disabled

APM Configuration

You can use this screen to select options for the APM settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages.



- **Restore on AC Power Loss**

This item allows you to set AC Power Loss to Power Off, Power On, or Last State.

- **Resume On Ring**

Disable or Enable RI to generate a wake event.

- **Resume On PME#**

Disable or Enable PME to generate a wake event.

- **Resume On PCIE WAKE#**

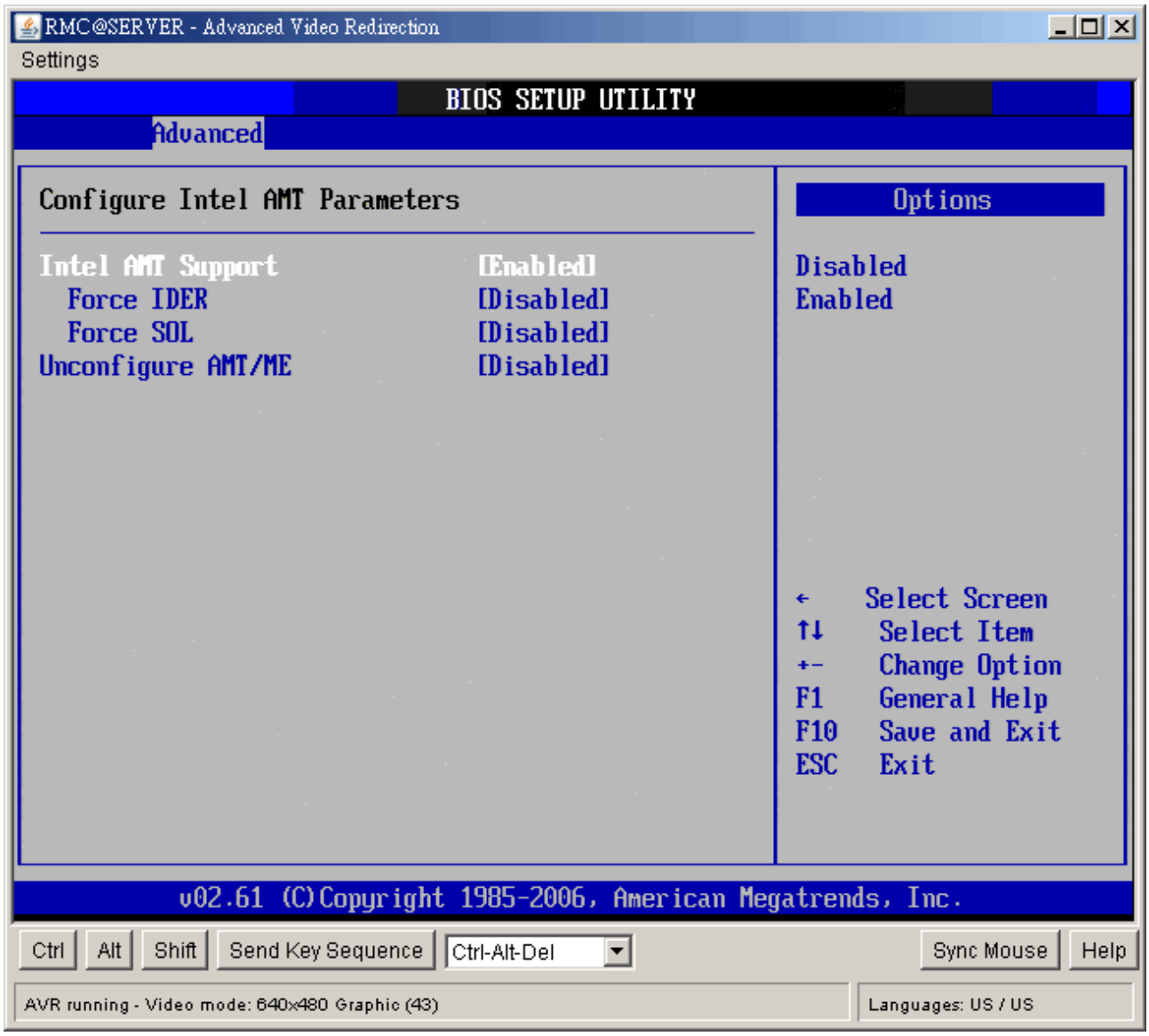
Disable or Enable PCIE generate a wake event.

- **Resume RTC Alarm**

Disable or Enable RTC to generate a wake event.

Intel AMT Configuration

You can use this screen to select options for Intel AMT settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages.



- **Intel AMT Support**

Intel Active Management Technology (AMT) is hardware-based technology for remotely managing and securing PCs out-of-band. The options are Disabled, Enabled

- **Force IDE/Force SOL**

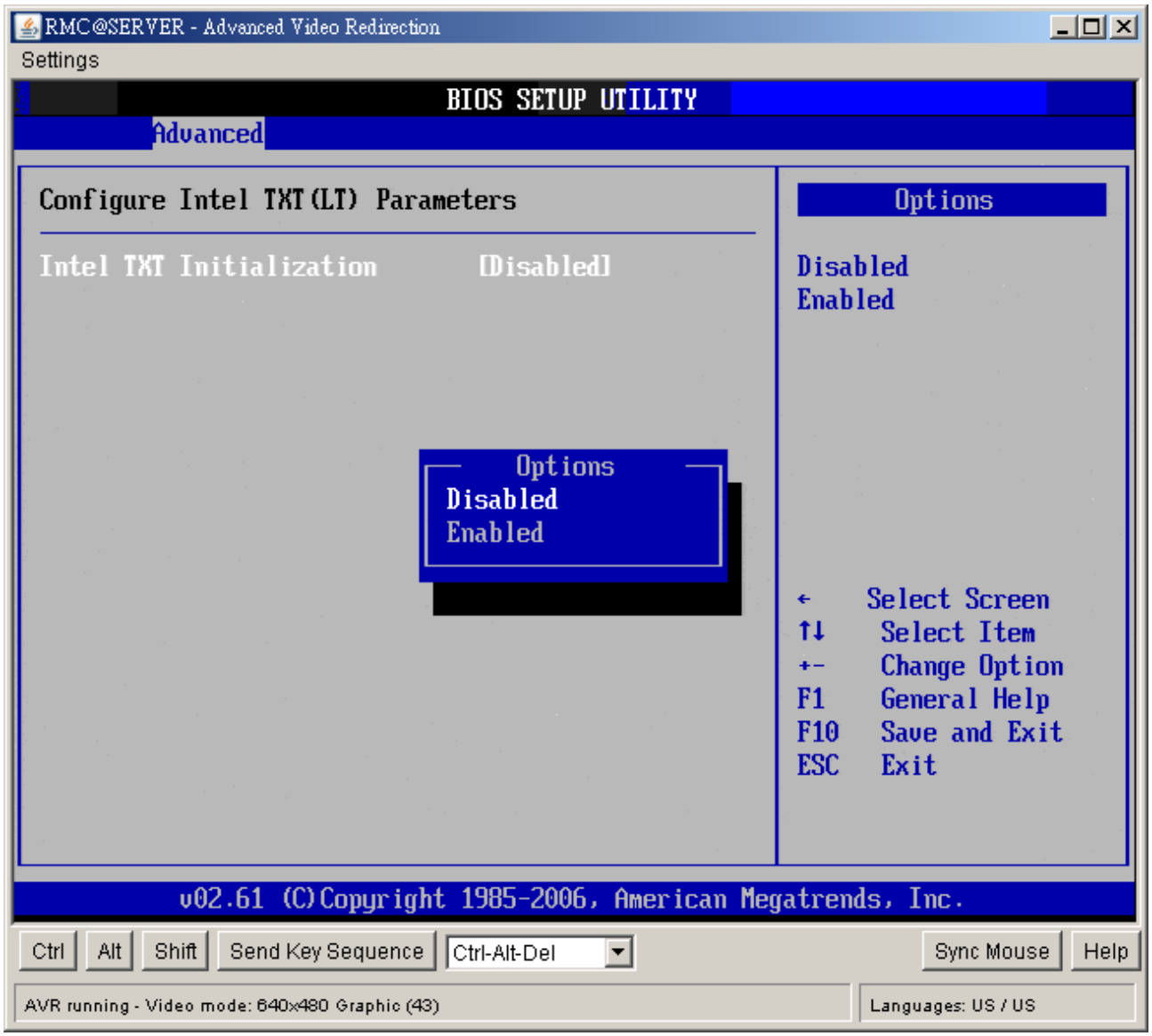
SOL/ IDER (Serial Over LAN/ IDE-Redirection) is a protocol defined for Intel Active Management Technology that allows redirecting the keyboard/text or floppy disk/CD transfers from a local host to a remote workstation.

- **Unconfigure AMT/ME**

To finish the unconfiguration of AMT, set this setting to [Enabled] and the BIOS will unconfigure all of AMT/ME settings and all the passwords are reset.

Intel TXT (LT) Configuration

You can use this screen to select options for the Intel TXT (LT) settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.

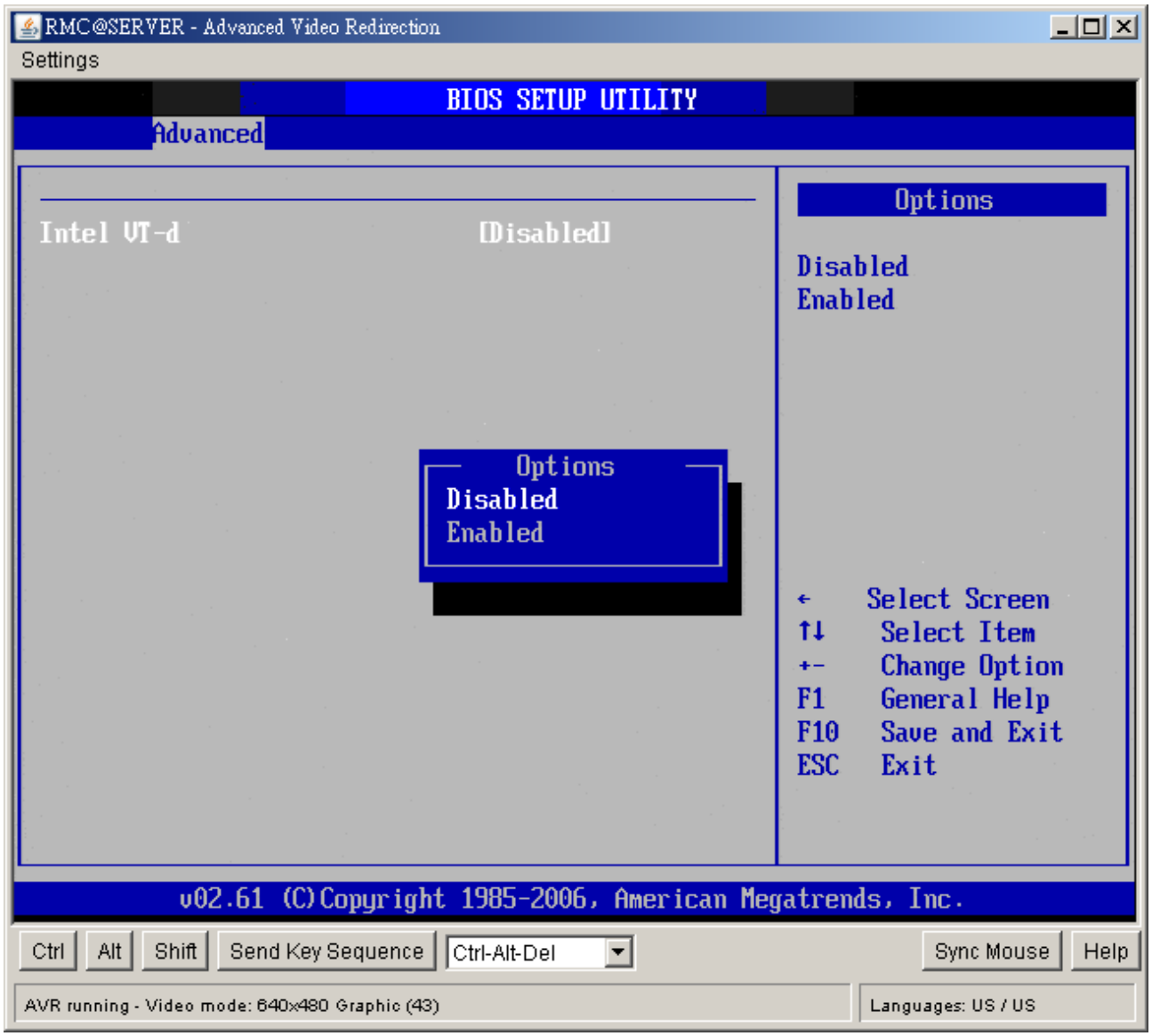


- **Intel TXT Initialization**

The Choices are enabled or disabled the Intel TXT initialization.

Intel VT-d Configuration

You can use this screen to select options for the Intel VT-d settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.

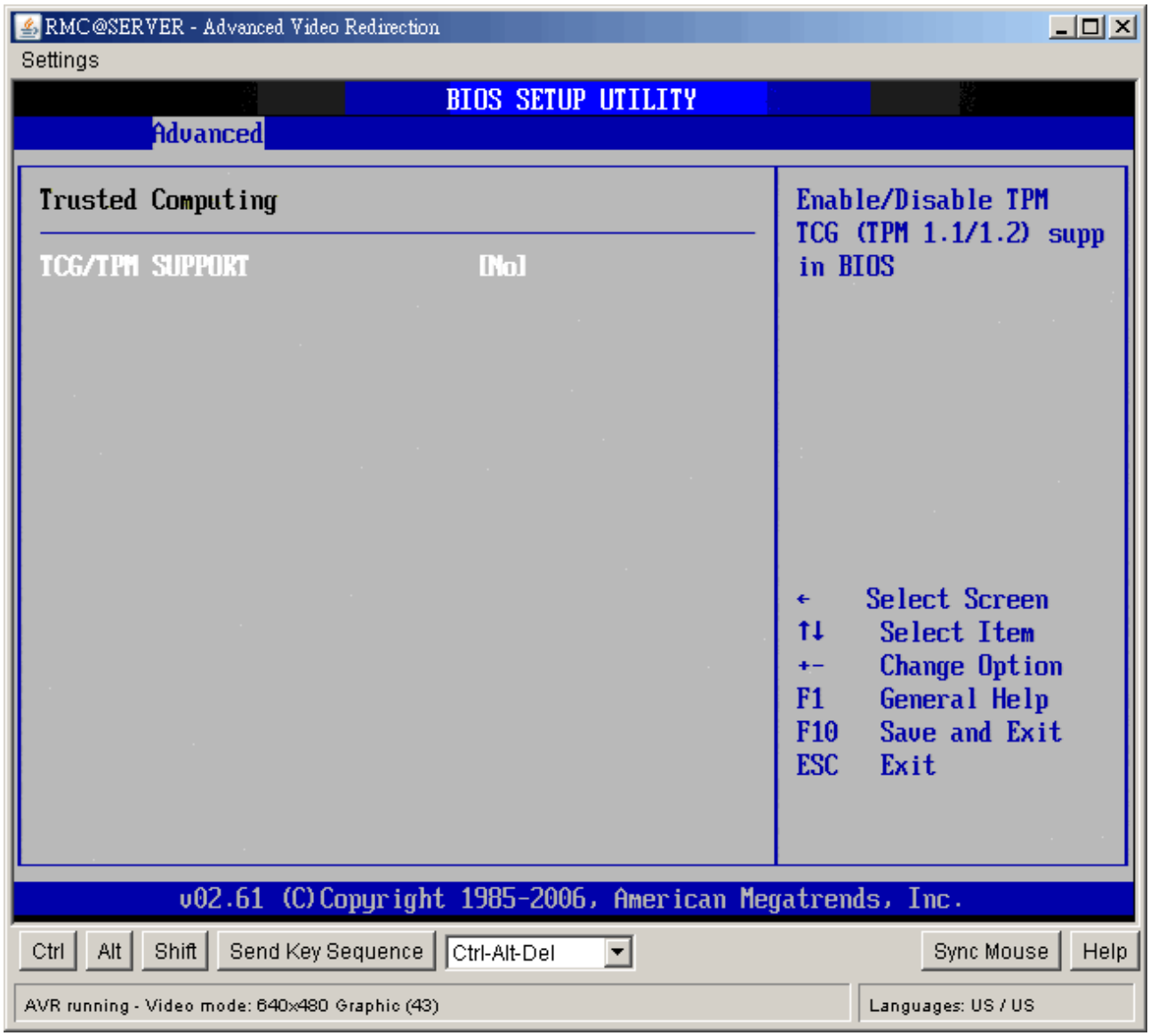


- **Intel VT-d**

The Choices are enabled or disabled the Intel VT-d.

Trusted Computing

You can use this screen to select options for the Intel Trusted Computing settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.

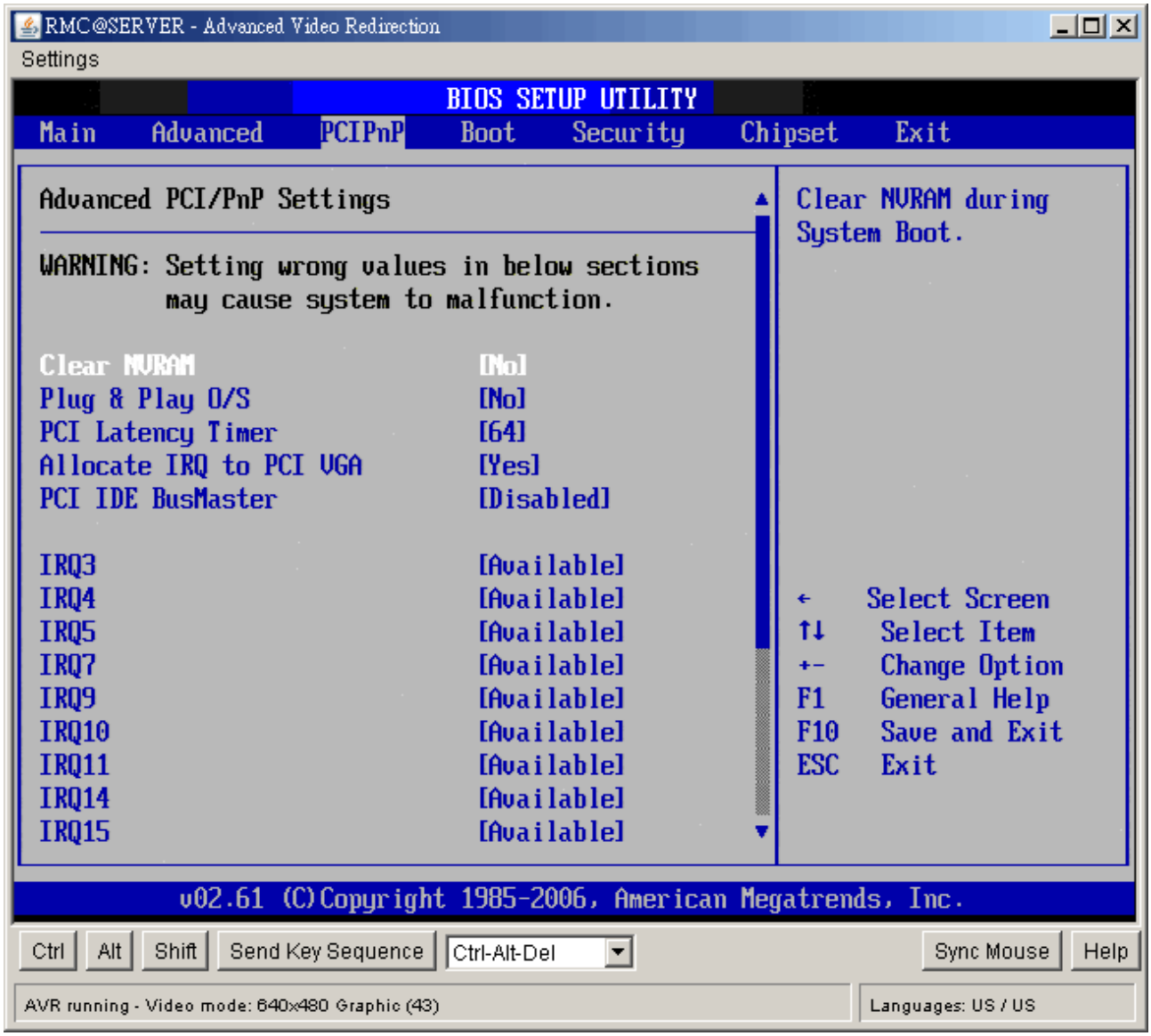


- **TCG/TPM SUPPORT**

Enable or disable TPM TCG (TPM 1.1/1.2) support in BIOS.

3.4 Advanced PCI/PnP Settings

Select the *PCI/PnP* tab from the setup screen to enter the Plug and Play BIOS Setup screen. You can display a Plug and Play BIOS Setup option by highlighting it using the <Arrow> keys. All Plug and Play BIOS Setup options are described in this section. The Plug and Play BIOS Setup screen is shown below.



Clear NVRAM

This item is to clear NVRAM during system boot. The choices are No or Yes.

Plug & Play O/S

Set this value to allow the system to modify the settings for Plug and Play operating system support. The default setting is *No*.

Option	Description
No	The *No* setting is for operating systems that do not meet the Plug and Play

	specifications. It allows the BIOS to configure all the devices in the system. This is the default setting.
Yes	The *Yes* setting allows the operating system to change the interrupt, I/O and DMA settings. Set this option if the system is running Plug and Play aware operating systems.

PCI Latency Timer

Set this value to allow the PCI Latency Timer to be adjusted. This option sets the latency of all PCI devices on the PCI bus. The default setting is 64.

Option	Description
32	This option sets the PCI latency to 32 PCI clock cycles.
64	This option sets the PCI latency to 64 PCI clock cycles. This is the default setting.
96	This option sets the PCI latency to 96 PCI clock cycles.
128	This option sets the PCI latency to 128 PCI clock cycles.
160	This option sets the PCI latency to 160 PCI clock cycles.
192	This option sets the PCI latency to 192 PCI clock cycles.
224	This option sets the PCI latency to 224 PCI clock cycles.
248	This option sets the PCI latency to 248 PCI clock cycles.

Allocate IRQ to PCI VGA

Set this value to allow or restrict the system from giving the VGA adapter card an interrupt address. The default setting is Yes.

Option	Description
Yes	Set this value to allow the allocation of an IRQ to a VGA adapter card that uses the PCI local bus. This is the default setting.
No	Set this value to prevent the allocation of an IRQ to a VGA adapter card that uses the PCI local bus.

PCI IDE BusMaster

Set this value to allow or prevent the use of PCI IDE busmastering. The setting is Disabled.

Option	Description
Disabled	Set this value to prevent PCI busmastering. This is the default setting.
Enabled	This option specifies that the IDE controller on the PCI local bus has mastering capabilities.

IRQ

Set this value to allow the IRQ settings to be modified. The default setting is available.

Interrupt	Option	Description

IRQ3 IRQ4 IRQ5 IRQ7 IRQ9 IRQ10 IRQ11 IRQ14 IRQ15	Available	This setting allows the specified IRQ to be used by a PCI/PnP device. This is the default setting.
	Reserved	This setting allows the specified IRQ to be used by a legacy ISA device.

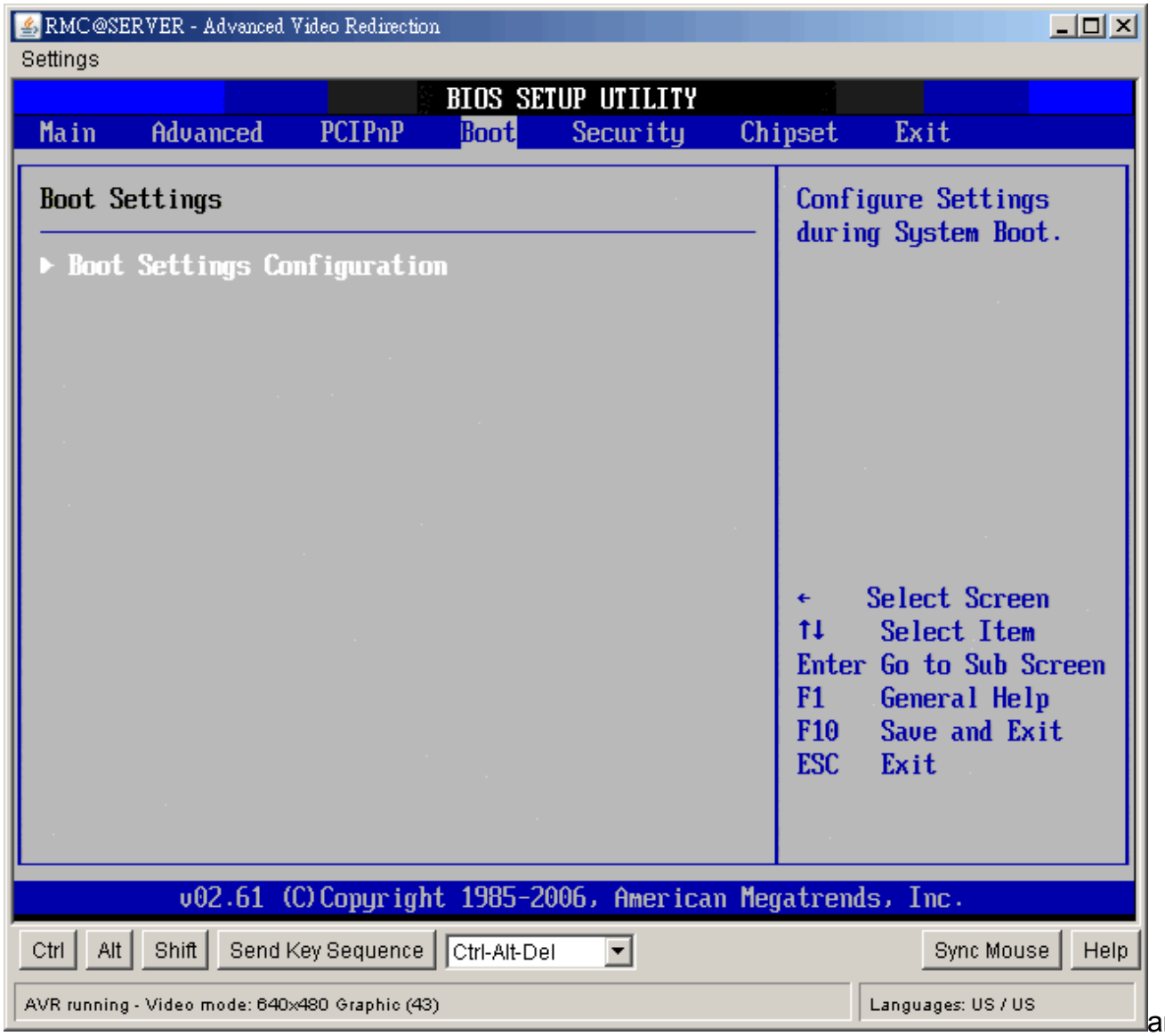
DMA

Set this value to allow the DMA setting to be modified. The default setting is Available.

DMA Channel	Option	Description
DMA Channel 0 DMA Channel 1 DMA Channel 3 DMA Channel 5 DMA Channel 6 DMA Channel 7	Available	This setting allows the specified DMA to be used by PCI/PnP device. This is the default setting.
	Reserved	This setting allows the specified DMA to be used by a legacy ISA device.

3.5 Boot Setting Configuration

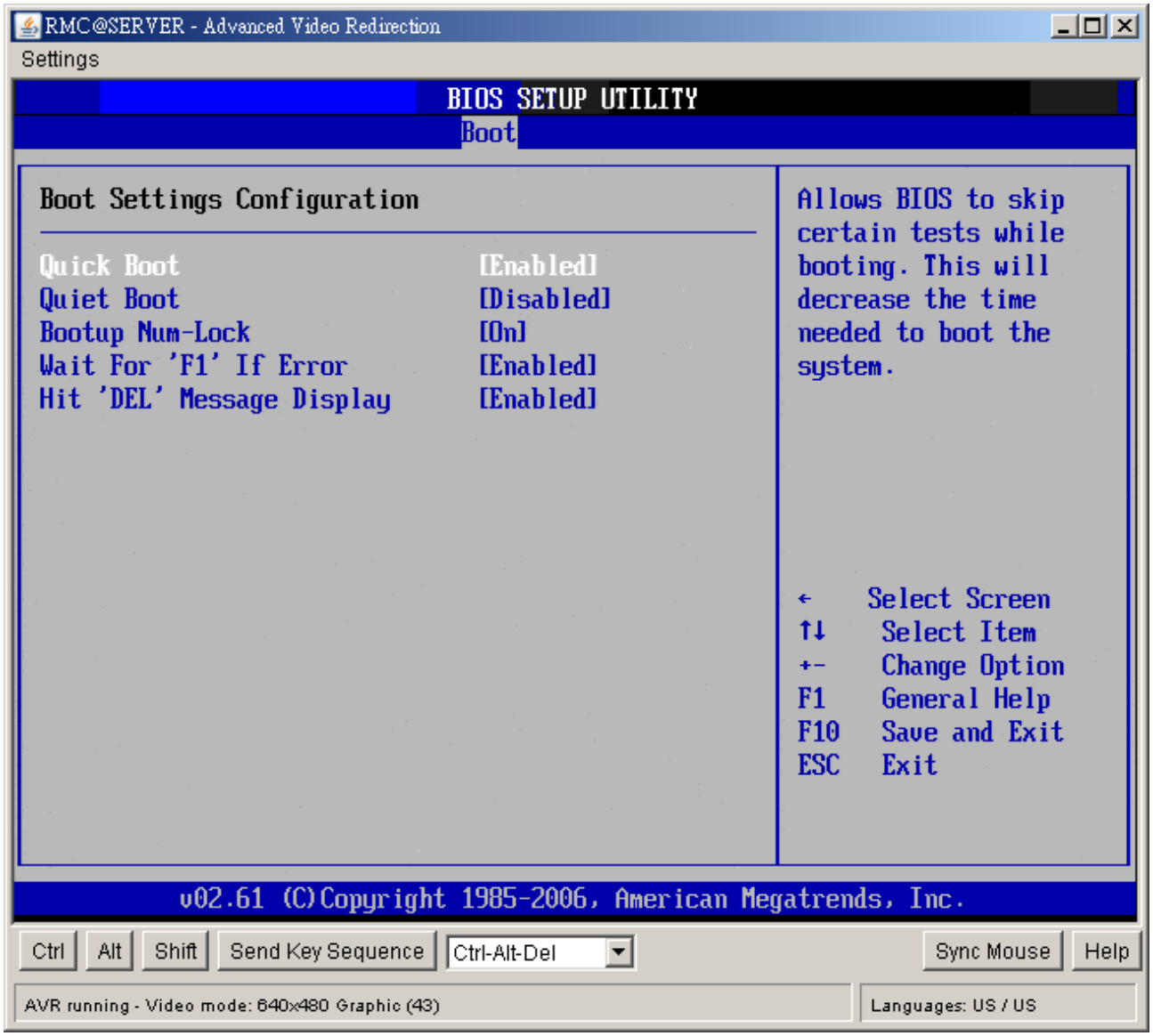
Select the *Boot* tab from the setup screen to enter the Boot Setup screen. You can display a Boot Setup option by highlighting it using the <Arrow> keys. All Boot BIOS Setup options



are described in this section. The Boot BIOS Setup screen is shown below.

Boot Settings Configuration

You can use this screen to select options for the Boot settings. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option. The settings are described on the following pages. The screen is shown below.



- **Quick Boot**

The default setting is Enabled.

Option	Description
Disabled	Set this value to allow the BIOS to perform all POST tests.
Enabled	Set this value to allow the BIOS to skip certain POST tests to boot faster.

- **Quiet Boot**

Set this value to allow the boot up screen options to be modified between POST messages or OEM logo. The default setting is Disabled.

Option	Description
Disabled	Set this value to allow the computer system to display the POST messages.
Enabled	Set this value to allow the computer system to display the OEM logo. This is the default setting.

- **Bootup Num-Lock**

Set this value to allow the Number Lock setting to be modified during boot up. The default setting is

On.

Option	Description
Off	This option does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard will light up when the Number Lock is engaged.
On	Set this value to allow the Number Lock on the keyboard to be enabled automatically when the computer system is boot up. This allows the immediate use of 10-keys numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard will be lit. This is the default setting.

- **Wait For "F1" If Error**

Set this value to allow the Wait for "F1" Error setting to be modified. The default setting is Enabled.

Option	Description
Disabled	This prevents the to wait on an error for user intervention. This setting should be used if there is a known reason for a BIOS error to appear. An example would be a system administrator must remote boot the system. The computer system does not have a keyboard currently attached. If this setting is set, the system will continue to boot up in to the operating system. If "F1" is enabled, the system will wait until the BIOS setup is entered.
Enabled	Set this value to allow the system BIOS to wait for any error. If an error is detected, pressing <F1> will enter Setup and the BIOS setting can be adjusted to fix the problem. This normally happens when upgrading the hardware and not setting the BIOS to recognized it. This is the default setting.

- **Hit "DEL" Message Display**

Set this value to allow the Hit "DEL" to enter Setup Message Display to be modified. The default setting is Enabled.

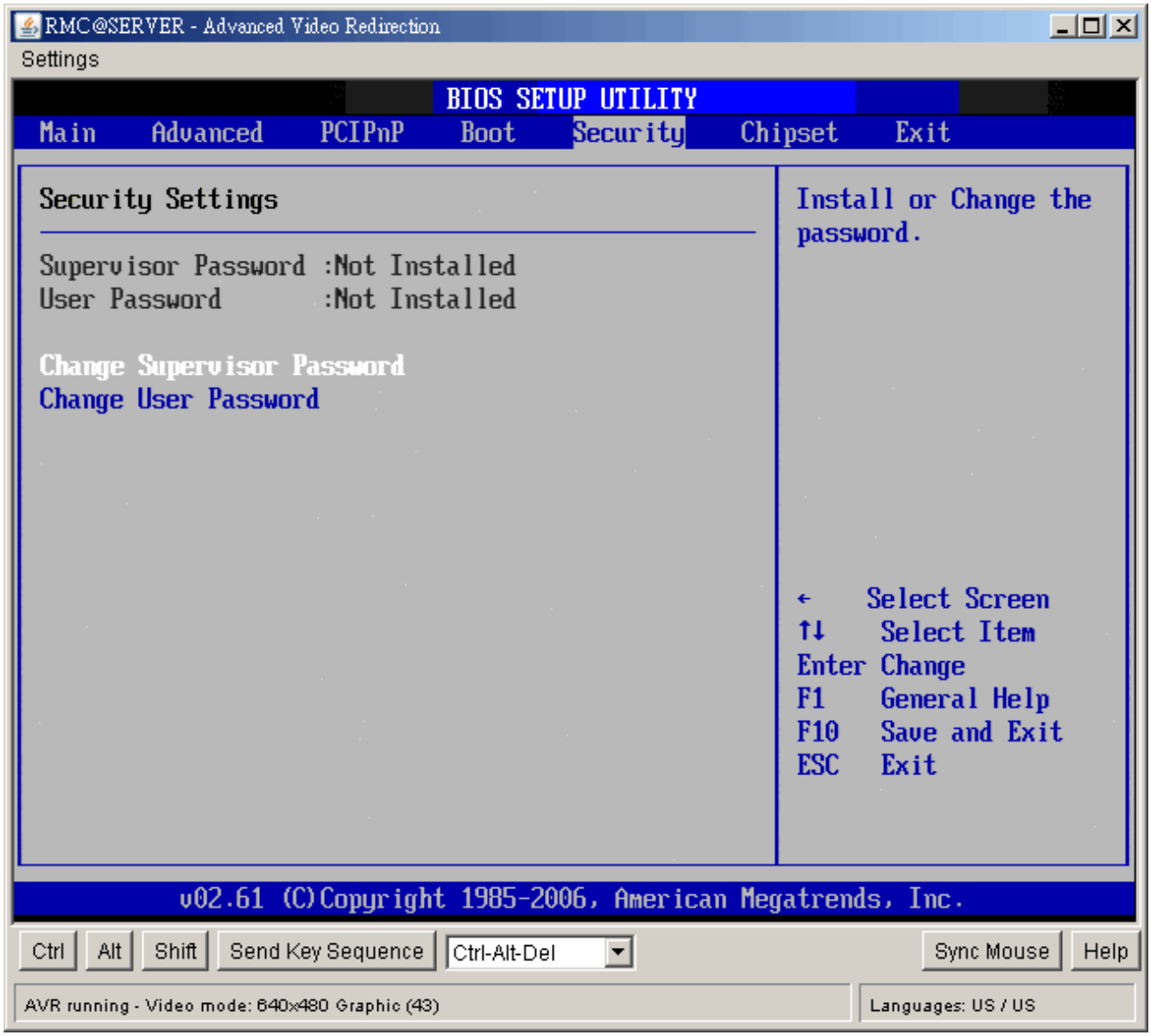
Option	Description
Disabled	This prevents to display "Hit Del to Enter Setup" during memory initialization. If Quiet Boot is enabled, the message will not display.
Enabled	This allows to display "Hit Del to Enter Setup" during memory initialization. This is the default setting.

3.6 Security Setup

Select Security Setup from the Setup main BIOS setup menu. All Security Setup options, such as password protection and virus protection, are described in this section. To access the sub menu for the following items, select the item and press <Enter>:

- Change Supervisor Password

The Security Setup screen is shown below. The sub menus are documented on the following pages.



Change Supervisor Password

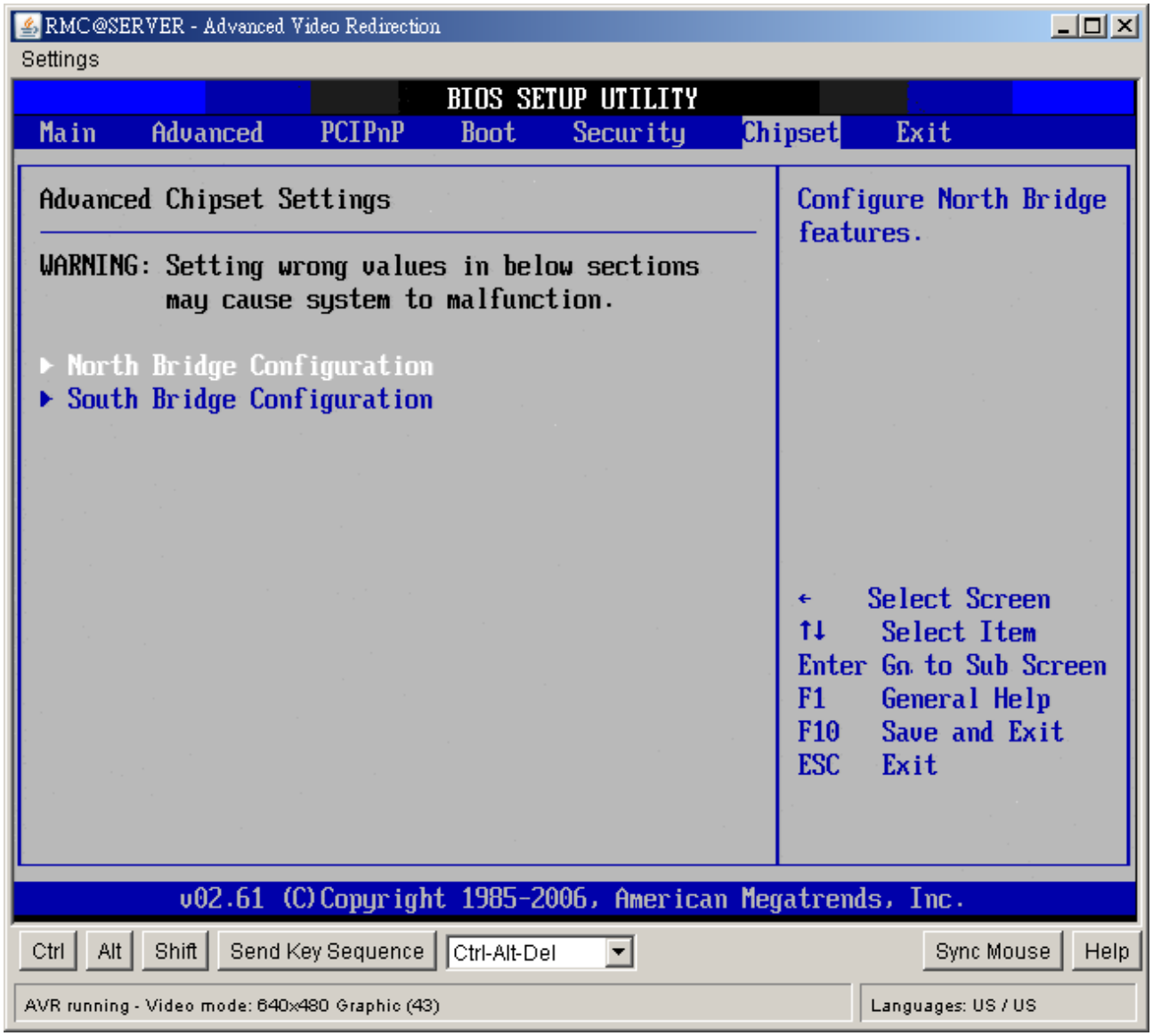
This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

Change User Password

This item indicates whether a user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

3.7 Chipset Setup

Select the *Chipset* tab from the setup screen to enter the Chipset BIOS Setup screen. You can select any of the items in the left frame of the screen, such as CPU Configuration, to go to the sub menu for that item. You can display a Chipset BIOS Setup option by highlighting it using the <Arrow> keys. All Chipset BIOS Setup options are described in this section. The Chipset BIOS Setup screen is shown below.


RMC@SERVER - Advanced Video Redirection
Settings
BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced Chipset Settings
WARNING: Setting wrong values in below sections
may cause system to malfunction.
North Bridge Configuration
South Bridge Configuration
Configure North Bridge features.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.
Ctrl
Alt
Shift
Send Key Sequence
Ctrl-Alt-Del
Sync Mouse
Help
AVR running - Video mode: 640x480 Graphic (43)
Languages: US / US

North Bridge Configuration

You can use this screen to select options for the North Bridge Configuration. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option.

Note: The North Bridge Configuration setup screen varies depending on the supported North Bridge chipset.

- **Boots Graphics Adaptor Priority**

This item selects which graphics controller to use as the primary boot device. The options are IGD, PCI/IGD, PCI/PEG, PEG/IGD, PEG/PCI. The default setting is PEG/PCI.

- **Internal Graphics Mode Select**

This item selects the amount of system memory used by the internal graphics device. The choices are Disabled, Enabled 32MB, Enabled 64MB, and Enabled 128MB.

- **Video Function Configuration**

- **DVMT Mode Select**

  Use this field to select the memory to allocate for video memory. The choice is “DVMT”.

  - **DVMT/Fixed Memory Size**

    Specify the size of DVMT/system memory to allocate for video memory. The options are 128MB, 256MB and Maximum DVMT.

- **Boot Display Device**

Use the field to select the type of device you want to use as the display(s) of the system.

- **Flat Panel Type**

This setting allows you to set your preferences for the boot display device.

- **Panel Backlight Control**

This setting allows you to adjust the output of JBKL1 connector for LCD Panel’s brightness. The choices are 0%, 25%, 50% and 100%. Notice: The change of LCD brightness might not be linear.

- **Spread Spectrum**

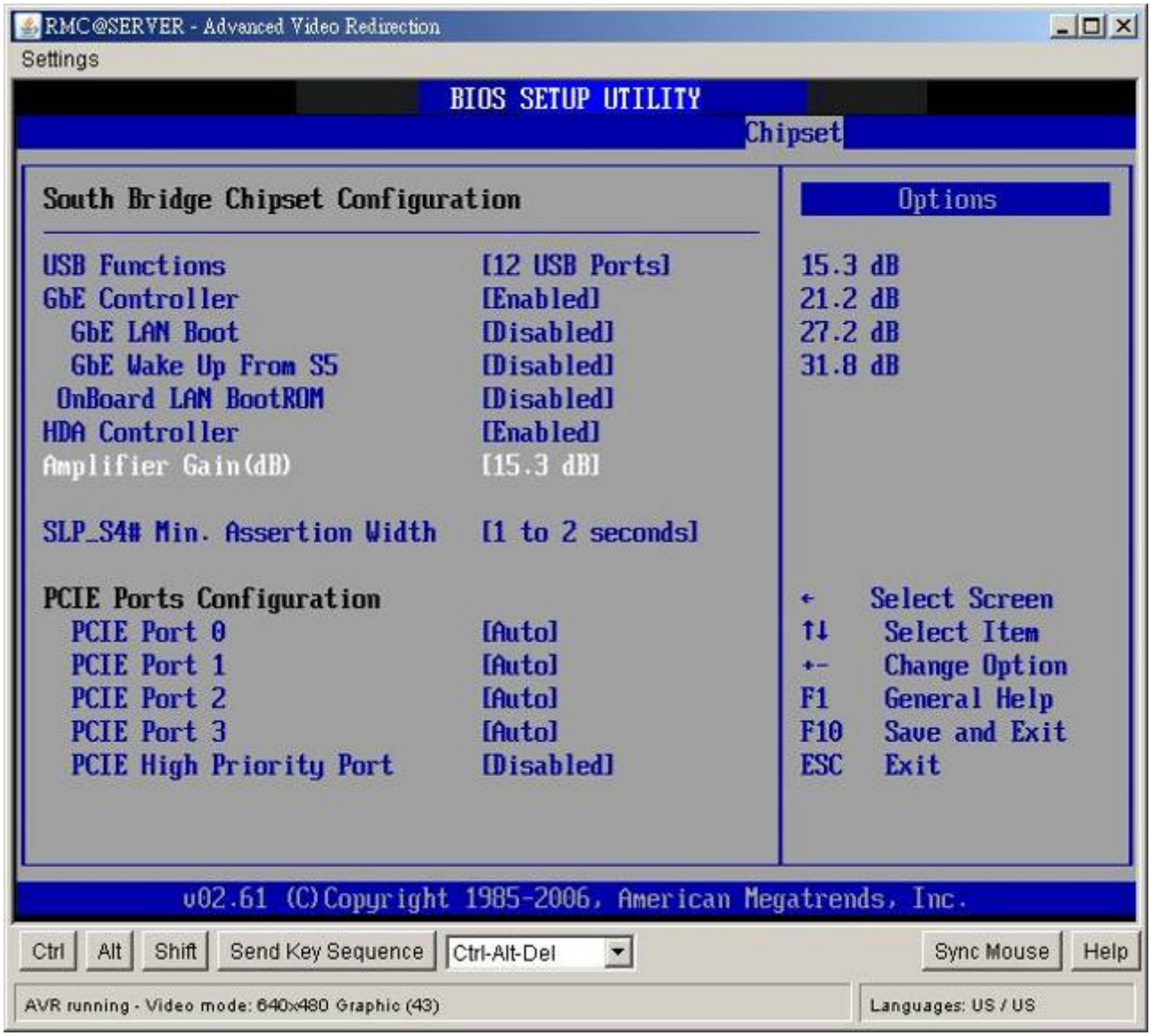
This setting allows you to reduce EMI by modulating the signals the CPU generates so that the spikes are reduced to flatter curves. This is achieved by varying the frequency slightly so that the signal does not use any particular frequency for more than a moment. The options: Disabled and Enabled.

- **HDCP Support**

HDCP(High-Bandwidth Digital Content Protection) is a copy protection protocol that was designed by Intel to prevent copying protected media as it travels across data lines. The choice are Disabled and Enabled

South Bridge Configuration

You can use this screen to select options for the South Bridge Configuration. South Bridge is a chipset on the motherboard that controls the basic I/O functions, USB ports, audio functions, modem functions, IDE channels, and PCI slots. Use the up and down <Arrow> keys to select an item. Use the <Plus> and <Minus> keys to change the value of the selected option.



- **USB Functions**

Set this value to allow the system to enable or disable the onboard USB ports. The choices are Disabled, 2 USB Ports, 4 USB Ports, 6 USB Ports, 8 USB Ports, 10 USB Ports, 12 USB Ports.

- **GbE Controller**

Options are “Enabled” and “Disabled”. Select “Disabled” if you don’t want to use onboard LAN controller.

- **GbE LAN Boot**

  When [Enabled], the BIOS attempts to boot from a LAN boot image before it attempts to boot from a local storage device.

- **GbE Wake up From S5**
  This field specifies whether the system will be awakened from the S5 power saving mode when activity or input signal of onboard LAN is detected.

- **OnBoard LAN Boot ROM**

Options are “Enabled” and “Disabled”. Select “Disabled” if you don’t want to use onboard LAN Boot Rom.

- **HDA Controller**

Options are “Enabled” and “Disabled”. Select “Disabled” if you don’t want to use HDA controller.

- **Amplifier Gain(dB)**

Options are “15.3 dB”, “21.2 dB”, “27.2 dB” and “31.8 dB”.

- **SLP_S4# Min. Assertion Width**

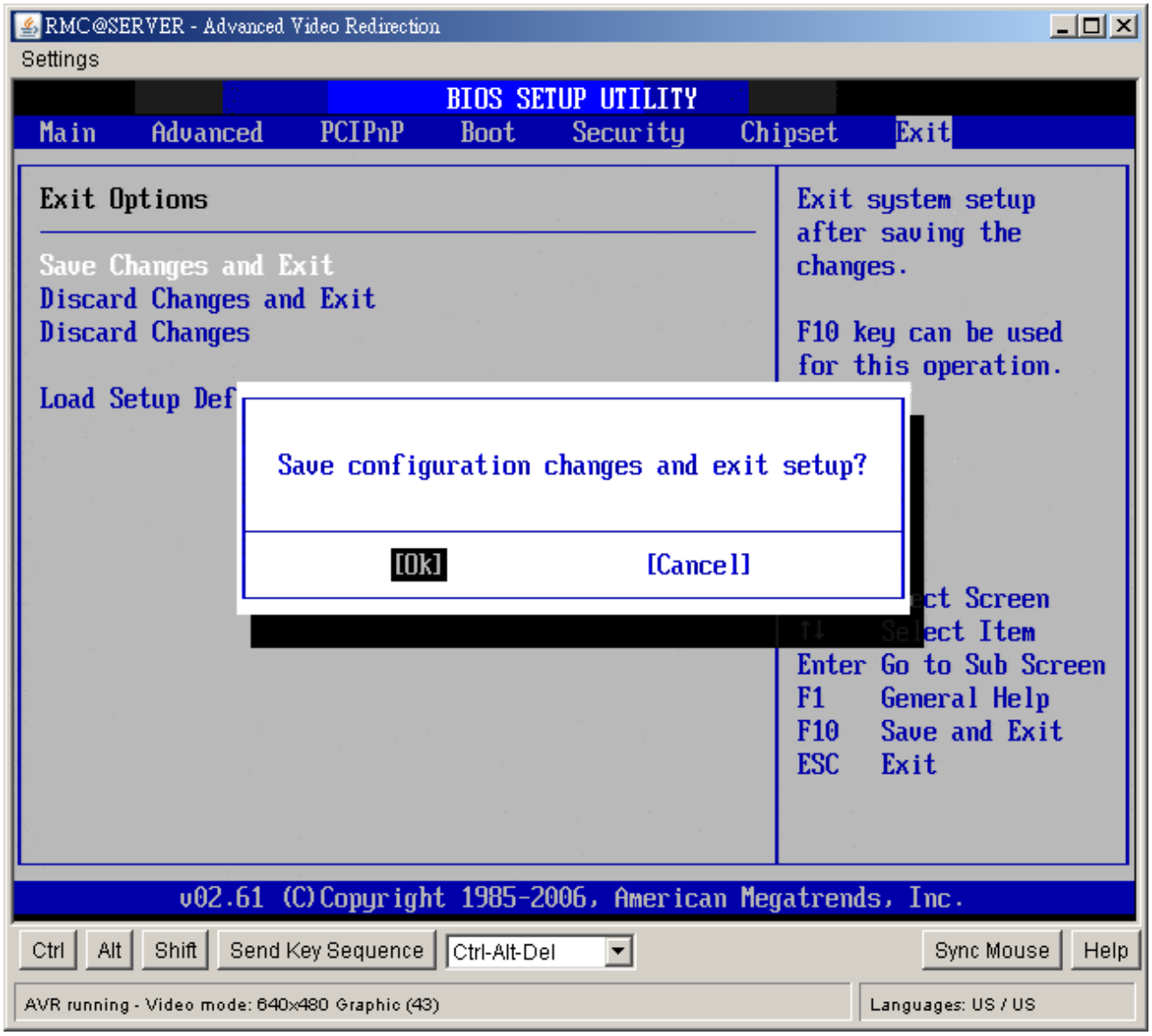
The choices are 4 to 5 seconds, 3 to 4 seconds, 2 to 3 seconds, and 1 to 2 seconds.

- **PCIE Ports Configuration**

Option	Description
PCIE Port 0	This setting allows to enable the PCIE Port 0. The choices are Auto, Enabled, and Disabled.
PCIE Port 1	This setting allows to enable the PCIE Port 1. The choices are Auto, Enabled, and Disabled.
PCIE Port 2	This setting allows to enable the PCIE Port 2. The choices are Auto, Enabled, and Disabled.
PCIE Port 3	This setting allows to enable the PCIE Port 3. The choices are Auto, Enabled, and Disabled.
PCIE High Priority Port	This setting allows to select the PCIE High Priority Port. The choices are Disabled, Port 0, Port 1, Port 2 and Port 3.

3.8 Exit Menu

Select the *Exit* tab from the setup screen to enter the Exit BIOS Setup screen. You can display an Exit BIOS Setup option by highlighting it using the <Arrow> keys. All Exit BIOS Setup options are described in this section. The Exit BIOS Setup screen is shown below.



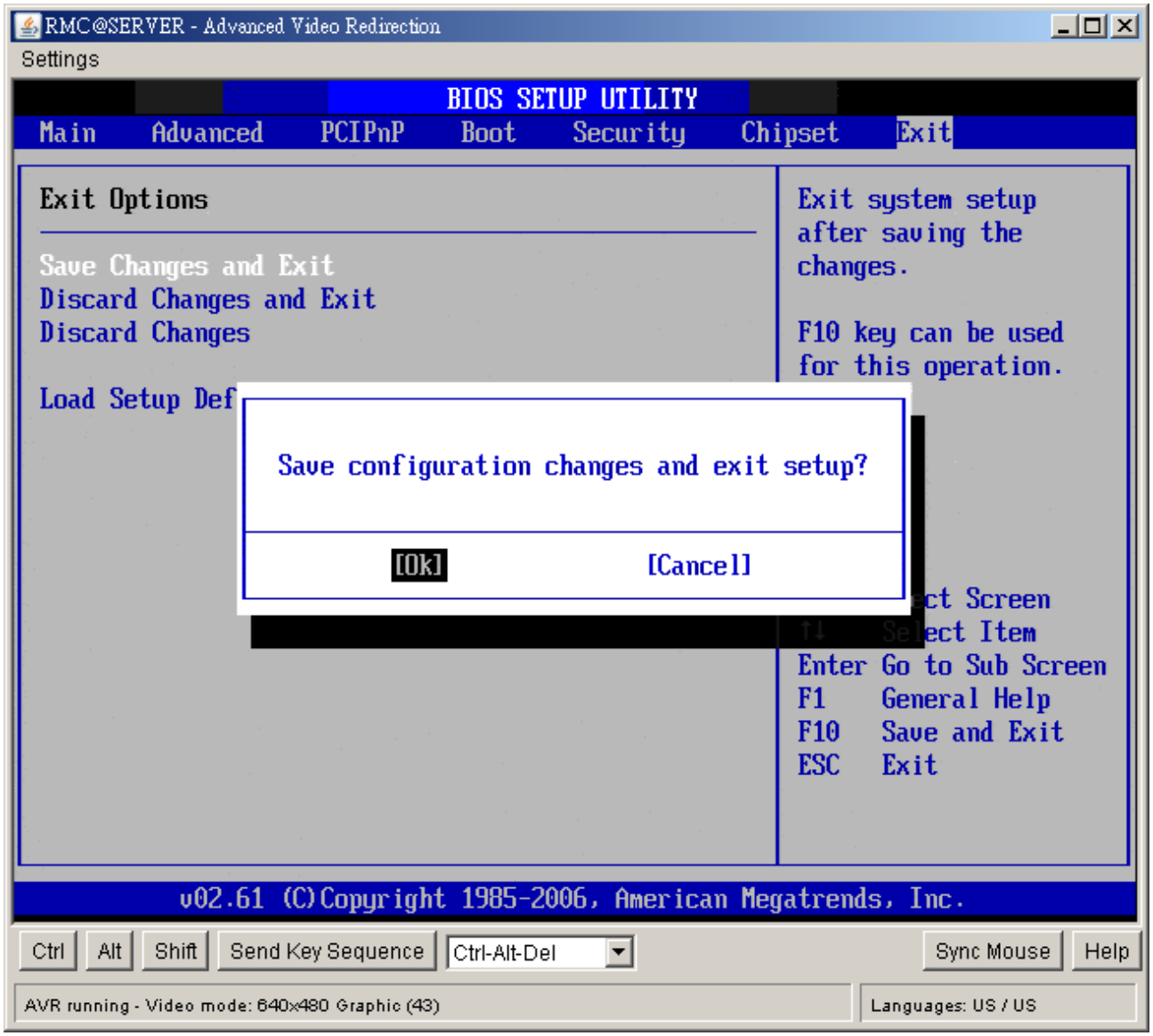
Save Changes and Exit

When you have completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configuration parameters can take effect. Select Exit Saving Changes from the Exit menu and press <Enter>.

Save Configuration Changes and Exit Now?

[Ok] [Cancel]

appears in the window. Select Ok to save changes and exit.



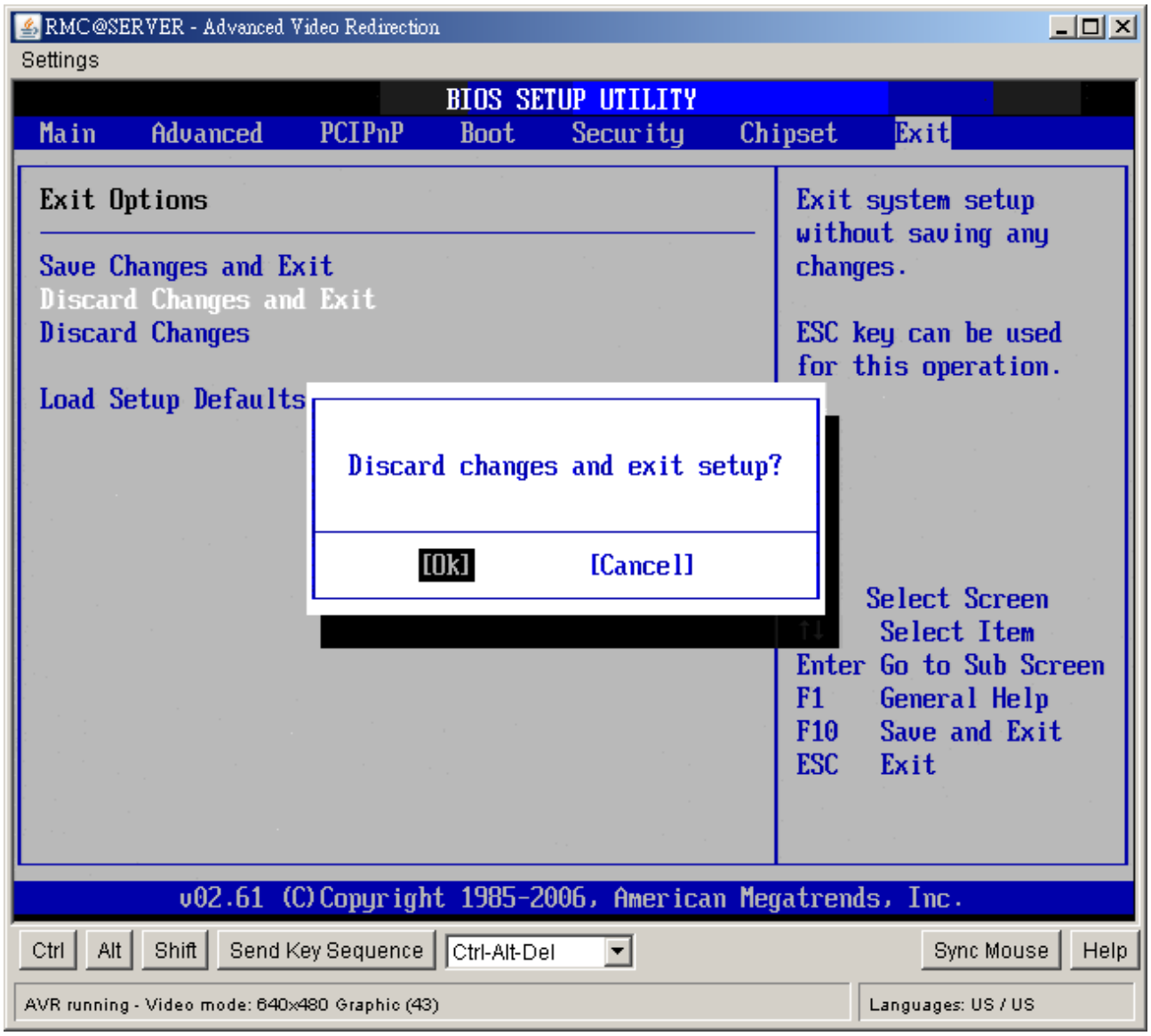
Discard Changes and Exit

Select this option to quit Setup without making any permanent changes to the system configuration. Select Exit Discarding Changes from the Exit menu and press <Enter>.

Discard Changes and Exit Setup Now?

[Ok] [Cancel]

appears in the window. Select *Ok* to discard changes and exit.


RMC@SERVER - Advanced Video Redirection
Settings
BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Setup Defaults
Exit system setup without saving any changes.
ESC key can be used for this operation.
Discard changes and exit setup?
[Ok] [Cancel]
Select Screen
Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.
Ctrl Alt Shift Send Key Sequence Ctrl-Alt-Del Sync Mouse Help
AVR running - Video mode: 640x480 Graphic (43)
Languages: US / US

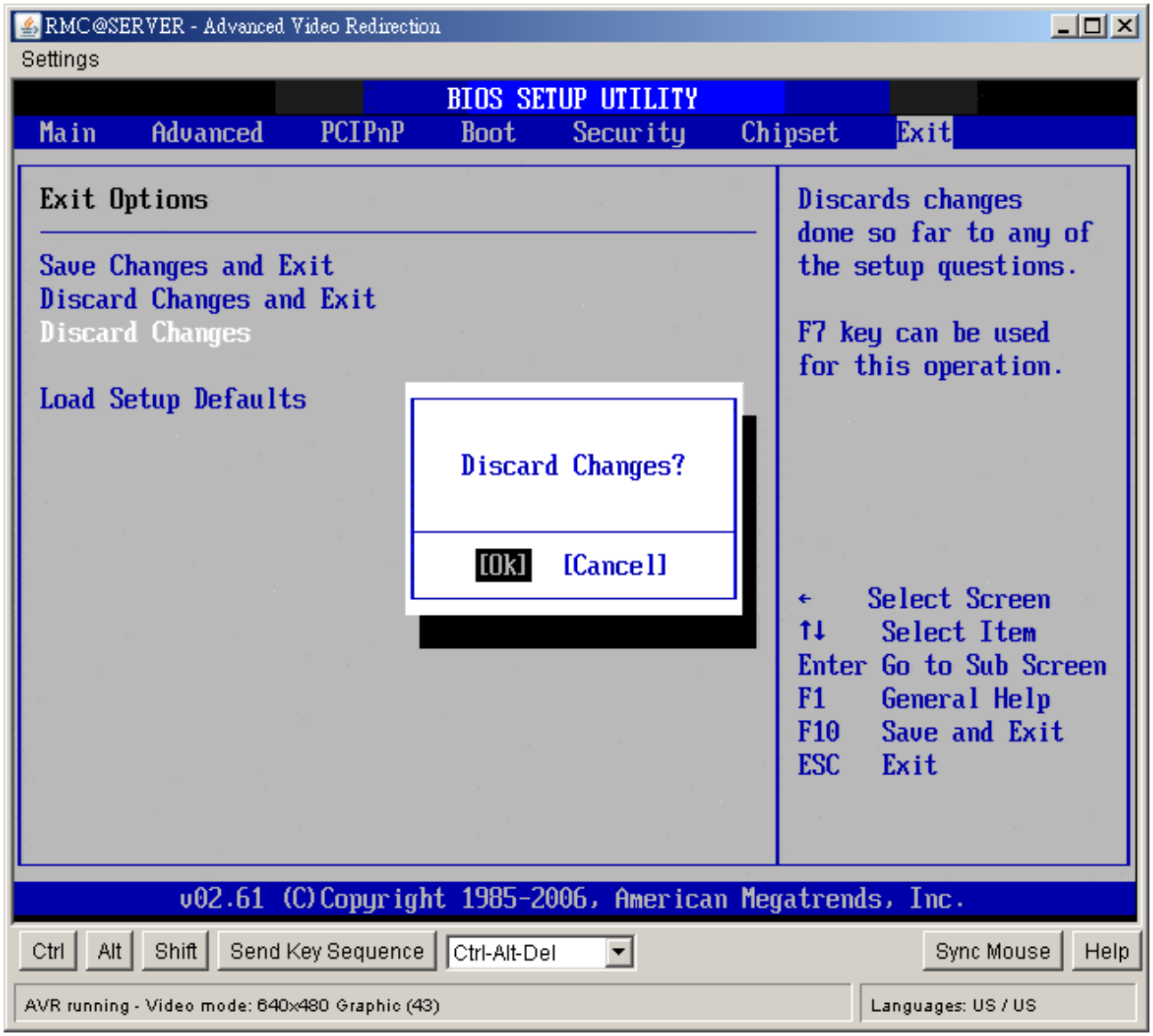
Discard Changes

Select Discard Changes from the Exit menu and press <Enter>.

Discard Changes ?

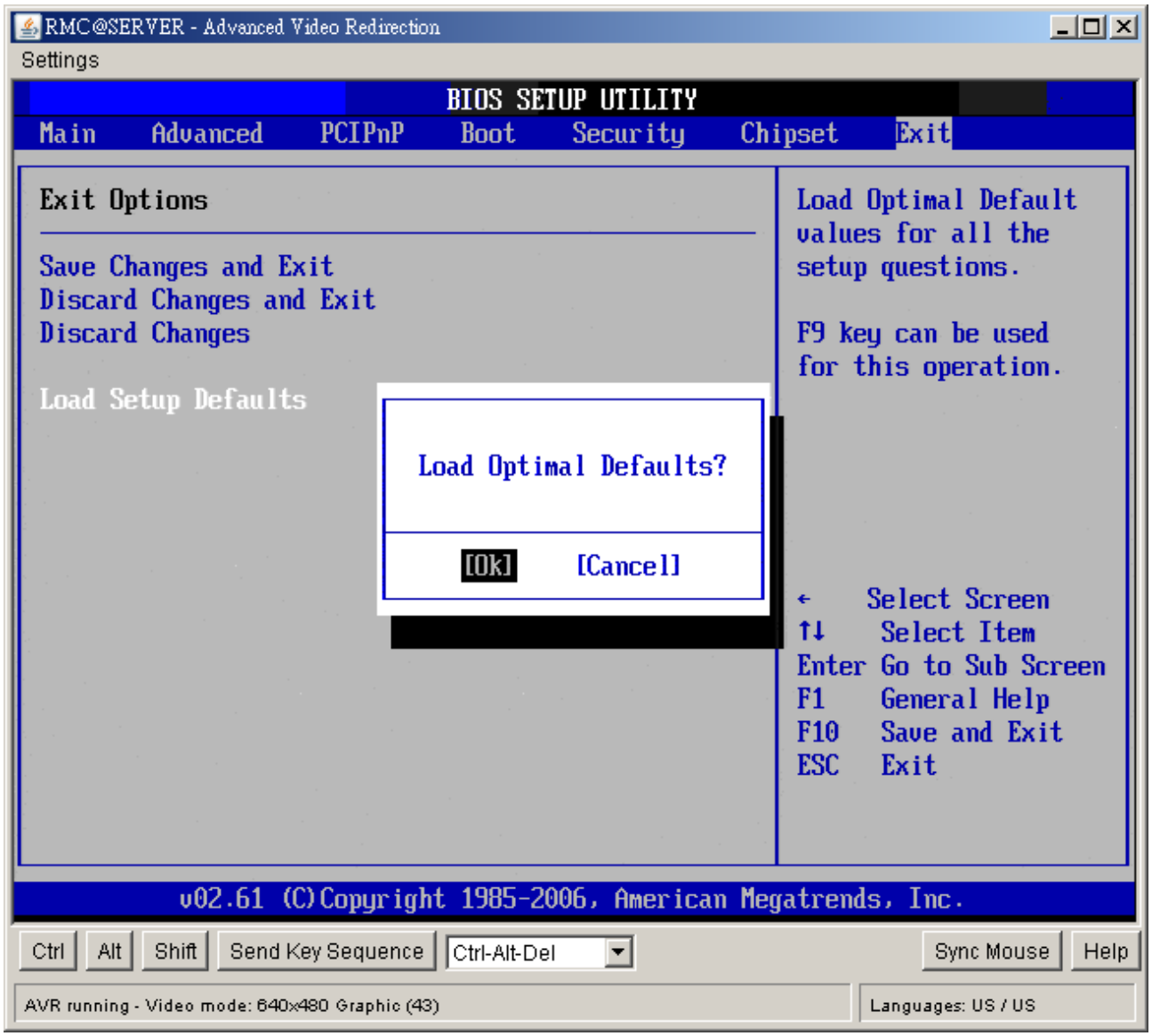
[Ok] [Cancel]

appears in the window. Select *Ok* to discard changes.



Load Setup Default

Automatically sets all Setup options to a complete set of default settings when you Select this option. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications. In particular, do not use the Optimal Setup options if your computer is experiencing system configuration problems. Select Load Setup Defaults from the Exit menu and press <Enter>. Select *Ok* to load optimal defaults.


RMC@SERVER - Advanced Video Redirection
Settings
BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Setup Defaults
Load Optimal Default values for all the setup questions.
F9 key can be used for this operation.
Load Optimal Defaults?
[Ok] [Cancel]
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.
Ctrl Alt Shift Send Key Sequence Ctrl-Alt-Del
Sync Mouse Help
AVR running - Video mode: 640x480 Graphic (43)
Languages: US / US

Chapter 4 Installation of Drivers

This chapter describes the installation procedures for software and drivers under the windows XP. The software and drivers are included with the motherboard. The contents include **Intel chipset driver VGA driver LAN drivers Audio driver iAMT Drvier**
Installation instructions are given below.

Important Note:
After installing your Windows operating system (Windows XP), you must install first the Intel Chipset Software Installation Utility before proceeding with the installation of drivers.

4.1 Intel Chipset Driver

To install the Intel chipset driver, please follow the steps below.

Step 1: Select Chipset from the list

Follow the step-by-step installation process to install the LMS_SQL driver.

Intel® Chipset Device Software
Intel® Chipset Device Software
intel
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
Refer to the Readme file below to view the system requirements and installation information. Press the Page Down key to view the rest of the file.
****
* Product: Intel(R) Chipset Device Software
* Release: Production Version
* Version: 9.0.0.1008
* Target Chipset#: Intel(R) 4 Series Chipset
* Date: May 01 2008
****
< Back
Next >
Cancel
Intel® Installation Framework

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Progress
Please wait while the following setup operations are performed:
Copying File: CSVer.dll
Creating Key: HKLM\SOFTWARE\Intel\Infinst\Language=ENU,sz
Installing Driver: Intel(R) ICH9M-E LPC Interface Controller - 2917
Version: 8.6.1.1002
Installing Driver: Intel(R) ICH9 Family PCI Express Root Port 1 - 2940
Version: 8.6.1.1002
Installing Driver: Intel(R) ICH9 Family PCI Express Root Port 2 - 2942
Version: 8.6.1.1002
Installing Driver: Intel(R) ICH9 Family PCI Express Root Port 3 - 2944
Version: 8.6.1.1002
Next
Intel® Installation Framework

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Progress
Please wait while the following setup operations are performed:
Installing Driver: Intel(R) ICH9 Family USB Universal Host Controller - 2939
Version: 8.3.0.1011
Installing Driver: Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293A
Version: 8.3.0.1011
Installing Driver: Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293C
Version: 8.3.0.1011
Installing Driver: Mobile Intel(R) 45 Express Chipset Series Processor to DRAM Controller - 2A4
Version: 8.7.0.1007
Click Next to continue.
Next
Intel® Installation Framework

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

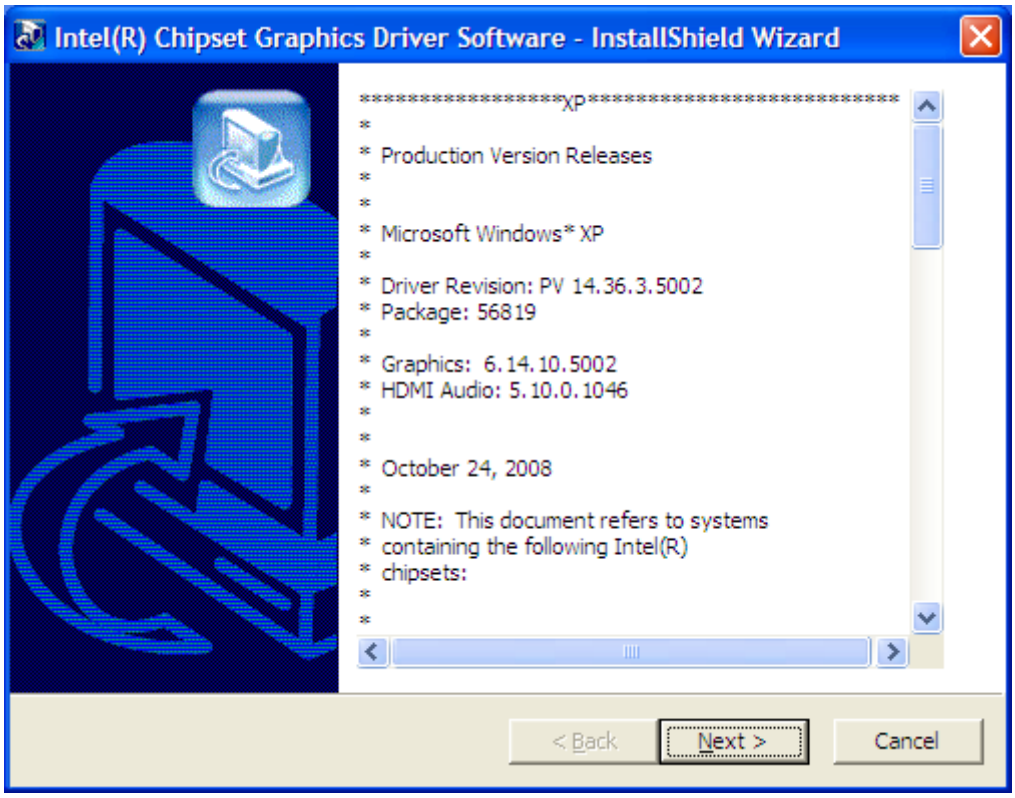
Click Finish, When the installation process is complete, the Setup Complete screen appears. See as picture.

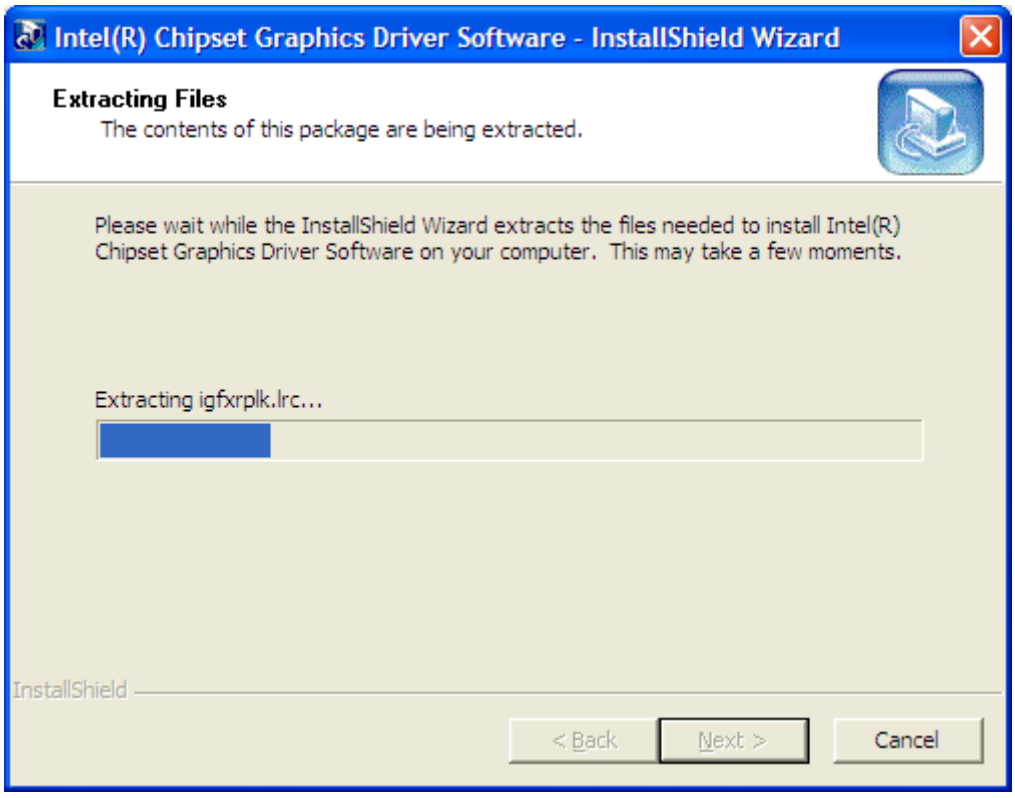
4.2 Intel Graphics Media Accelerator Driver

To install the VGA drivers, follow the steps below to proceed with the installation.

1. Click Intel(R) GM45 Chipset Family Graphics Driver.

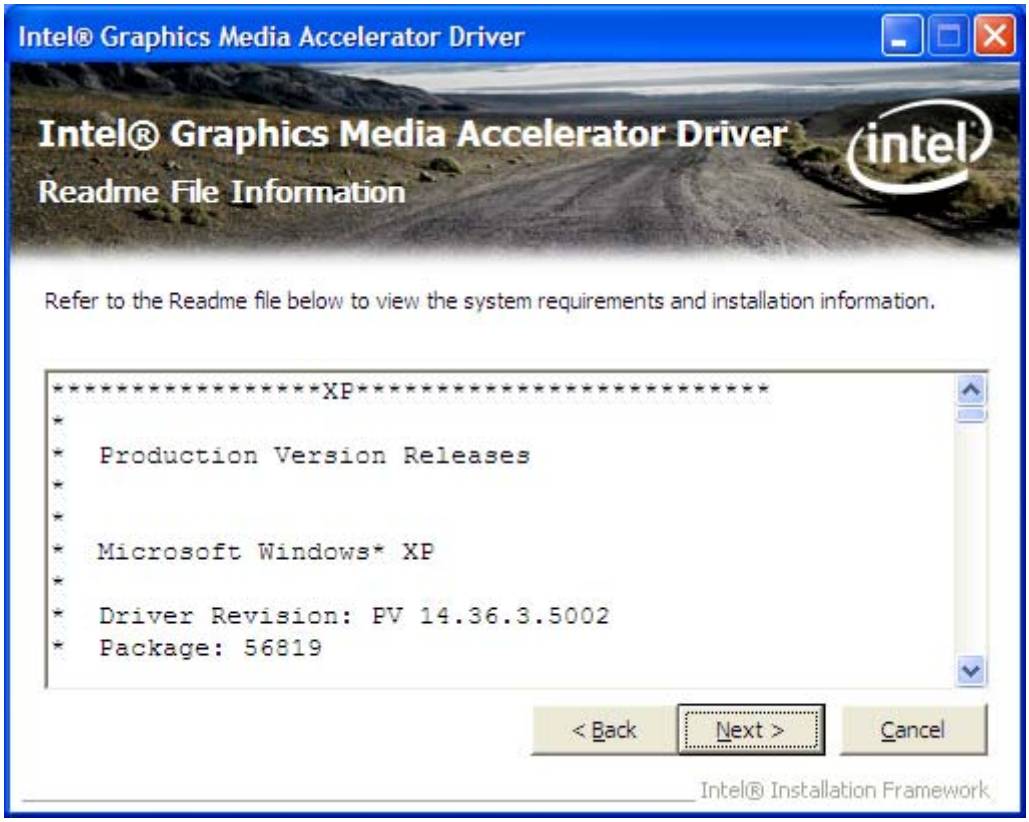
Follow the step-by-step installation process to install the Graphics Media Accelerator driver.

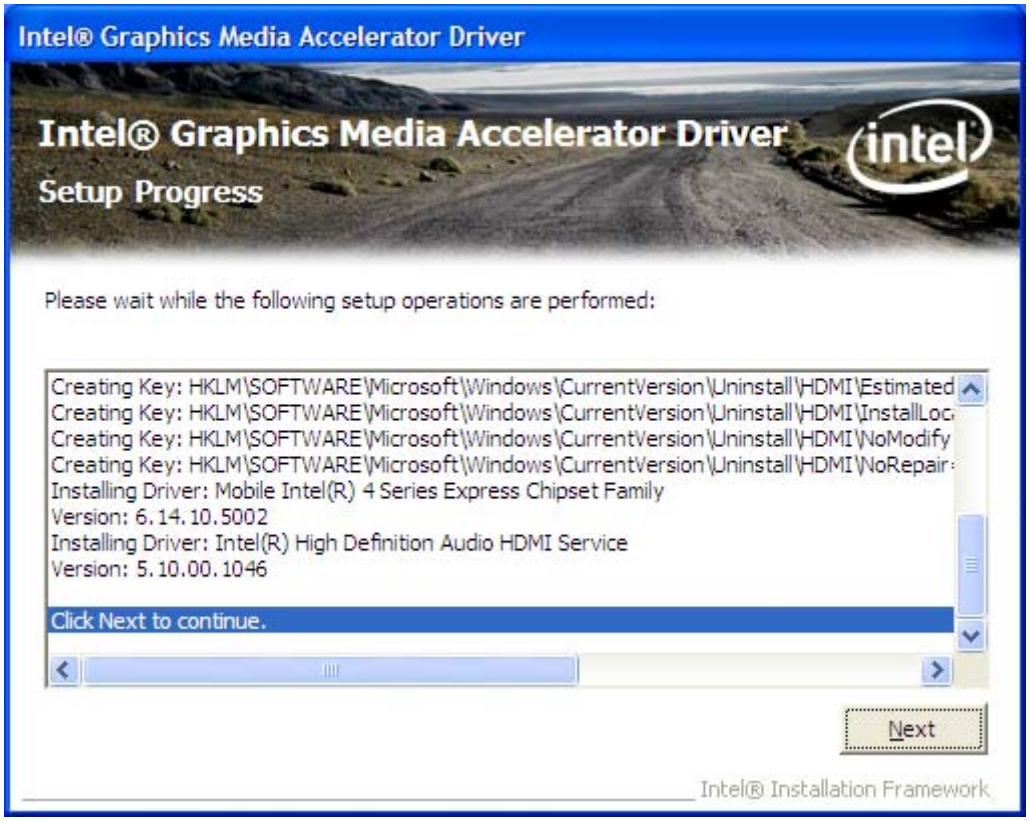



Intel(R) Chipset Graphics Driver Software - InstallShield Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield Wizard extracts the files needed to install Intel(R) Chipset Graphics Driver Software on your computer. This may take a few moments.
Extracting igfxrplk.lrc...
InstallShield
< Back
Next >
Cancel

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Welcome to the Setup Program
This setup program will install the following software onto this computer:
- Intel® Graphics Media Accelerator Driver
- Intel® High Definition Audio HDMI Driver
It is strongly recommended that you exit all programs before continuing. Click Next to continue.
< Back
Next >
Cancel
Intel® Installation Framework

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework


Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Readme File Information
Refer to the Readme file below to view the system requirements and installation information.
**********XP**********
* Production Version Releases
* Microsoft Windows* XP
* Driver Revision: PV 14.36.3.5002
* Package: 56819
< Back
Next >
Cancel
Intel® Installation Framework


Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Progress
Please wait while the following setup operations are performed:
Creating Key: HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\HDMI\Estimated
Creating Key: HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\HDMI\InstallLoc
Creating Key: HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\HDMI\NoModify
Creating Key: HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\HDMI\NoRepair
Installing Driver: Mobile Intel(R) 4 Series Express Chipset Family
Version: 6.14.10.5002
Installing Driver: Intel(R) High Definition Audio HDMI Service
Version: 5.10.00.1046
Click Next to continue.
Next
Intel® Installation Framework

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Is Complete
intel
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

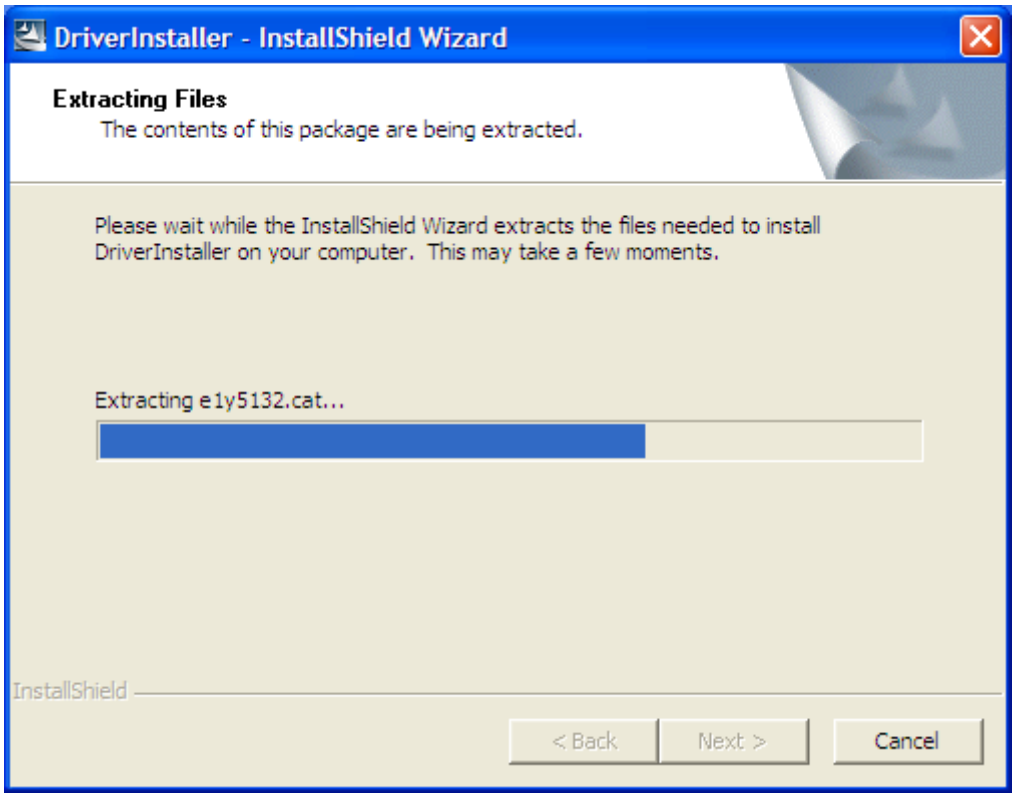
Click FINISH; A Driver Installation Complete.

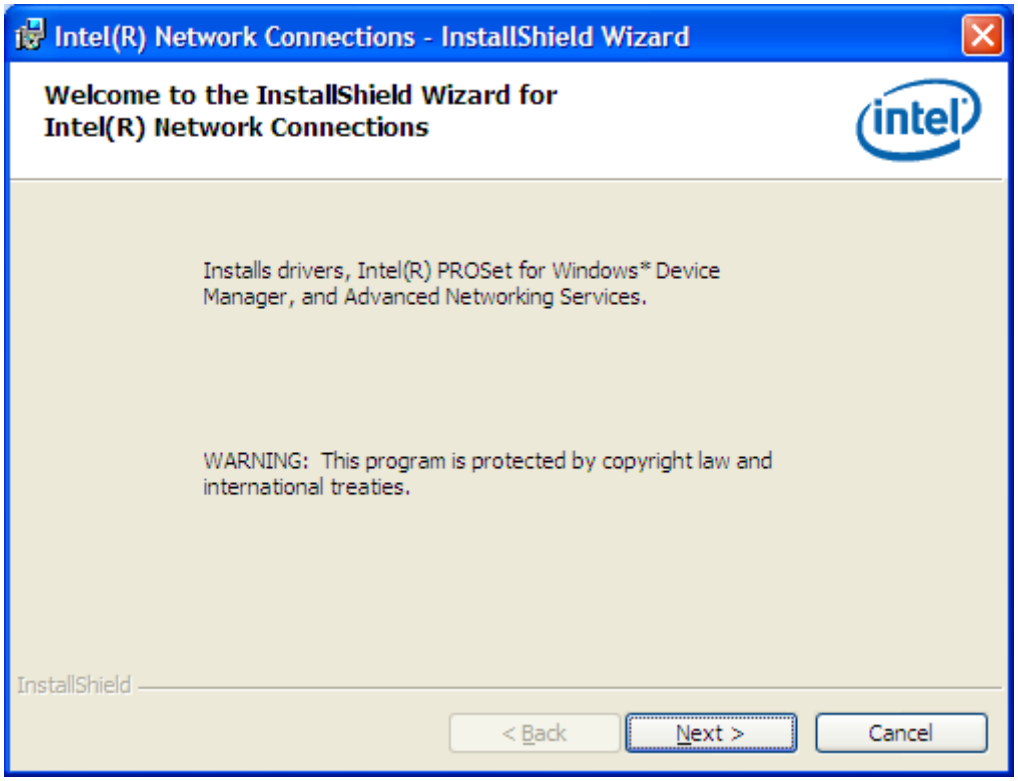
4.3 Intel 82567LM & 82574L LAN Device Driver

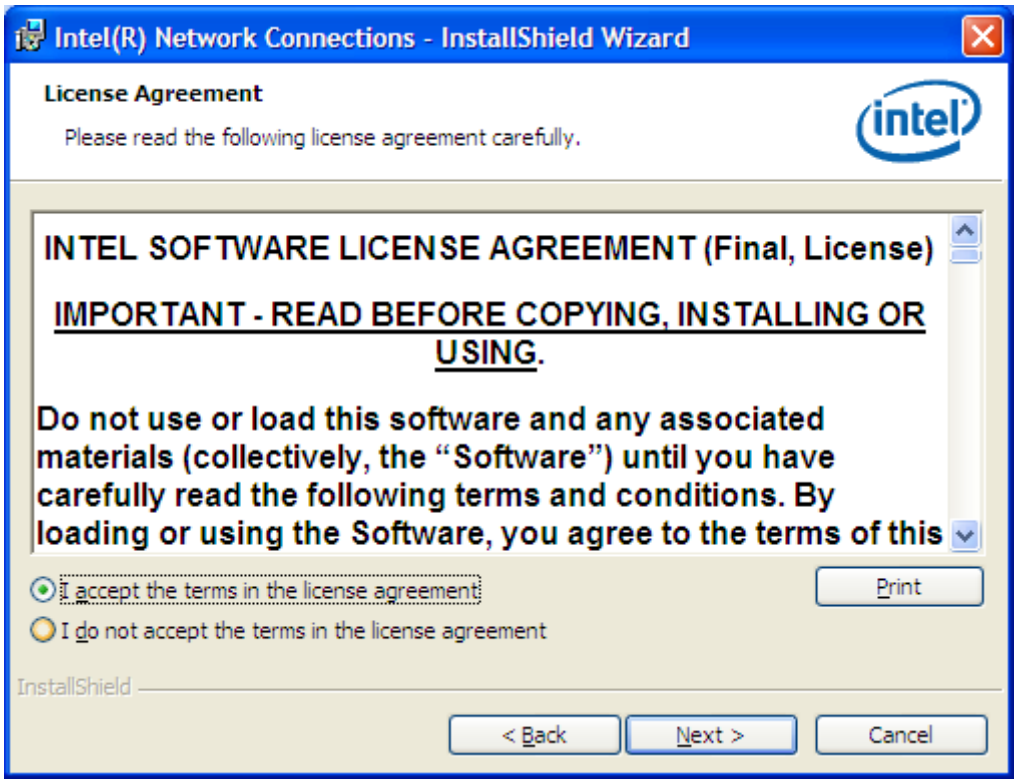
To install the Intel R 82567LM & 82574L Gigabit LAN connect device driver, please follow the steps below.

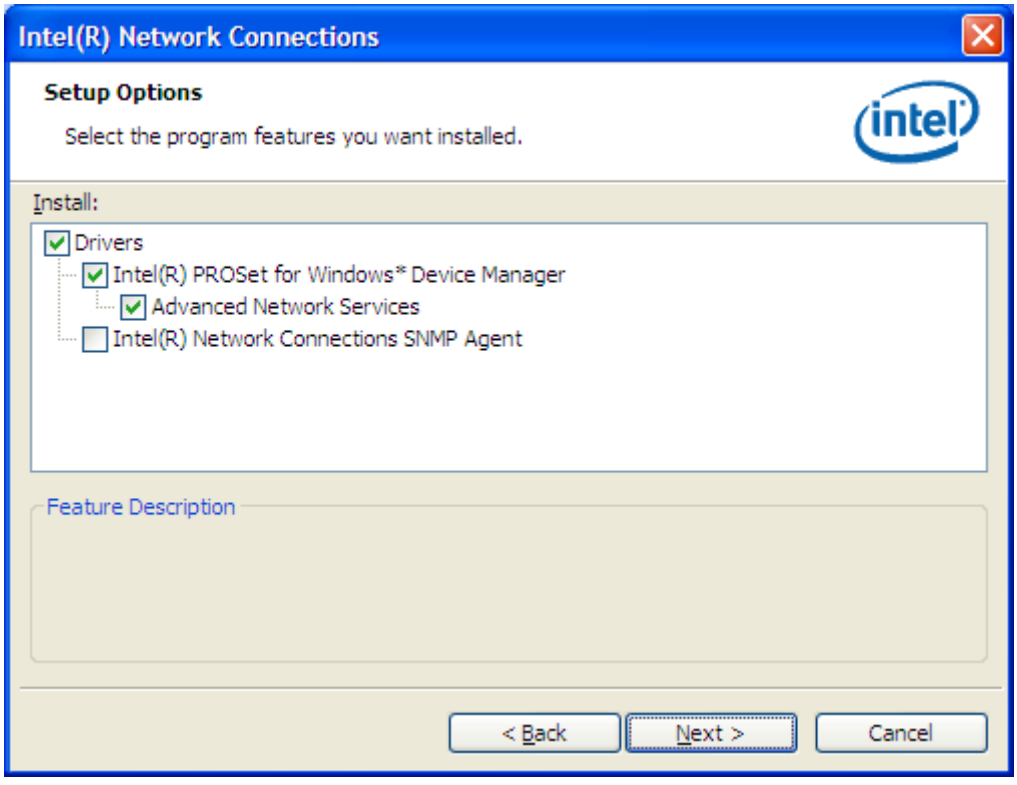
Select LAN from the list

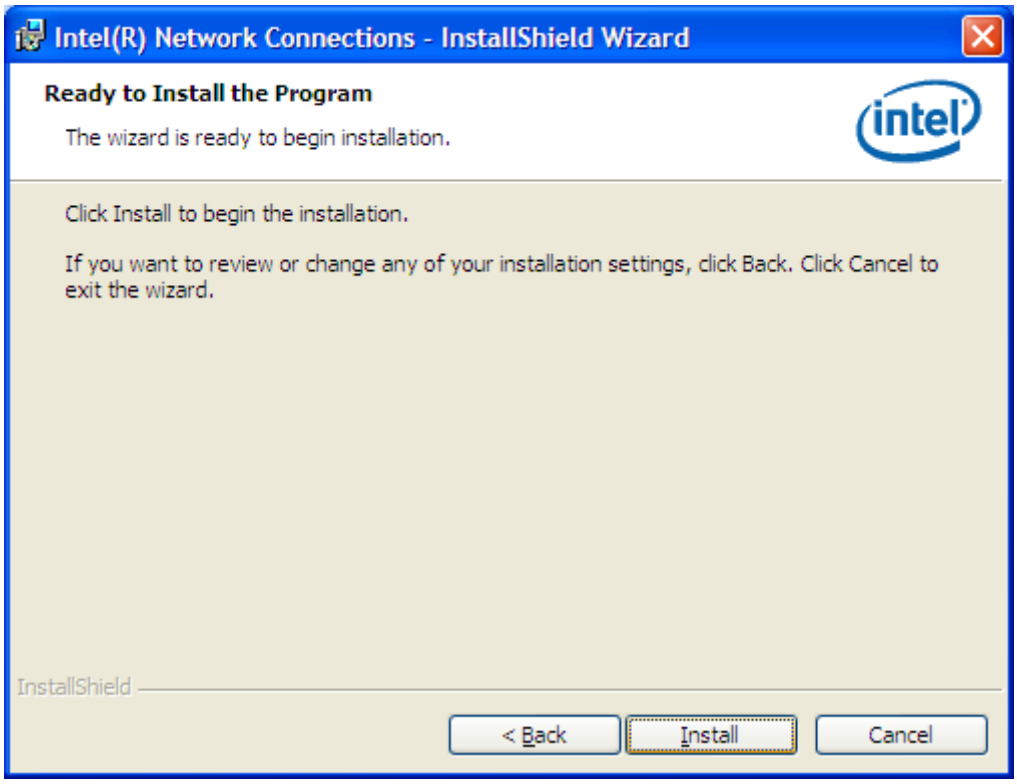
Follow the step-by-step installation process to install the LAN driver.

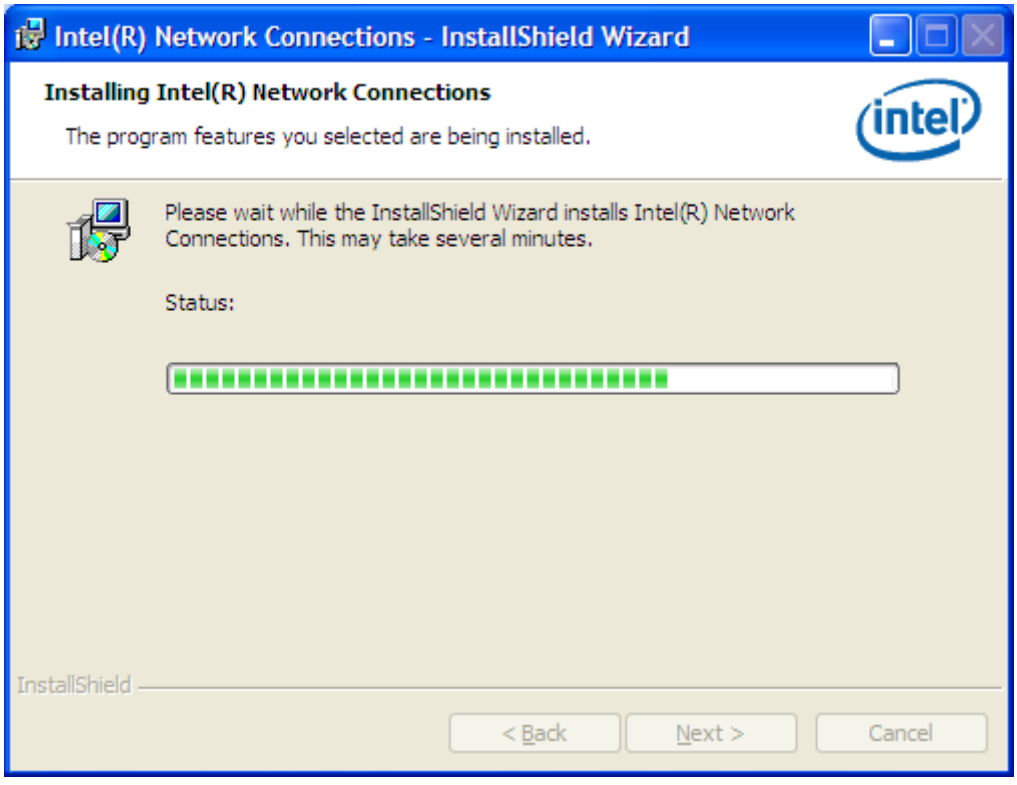

DriverInstaller - InstallShield Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield Wizard extracts the files needed to install DriverInstaller on your computer. This may take a few moments.
Extracting e1y5132.cat...
InstallShield
< Back
Next >
Cancel

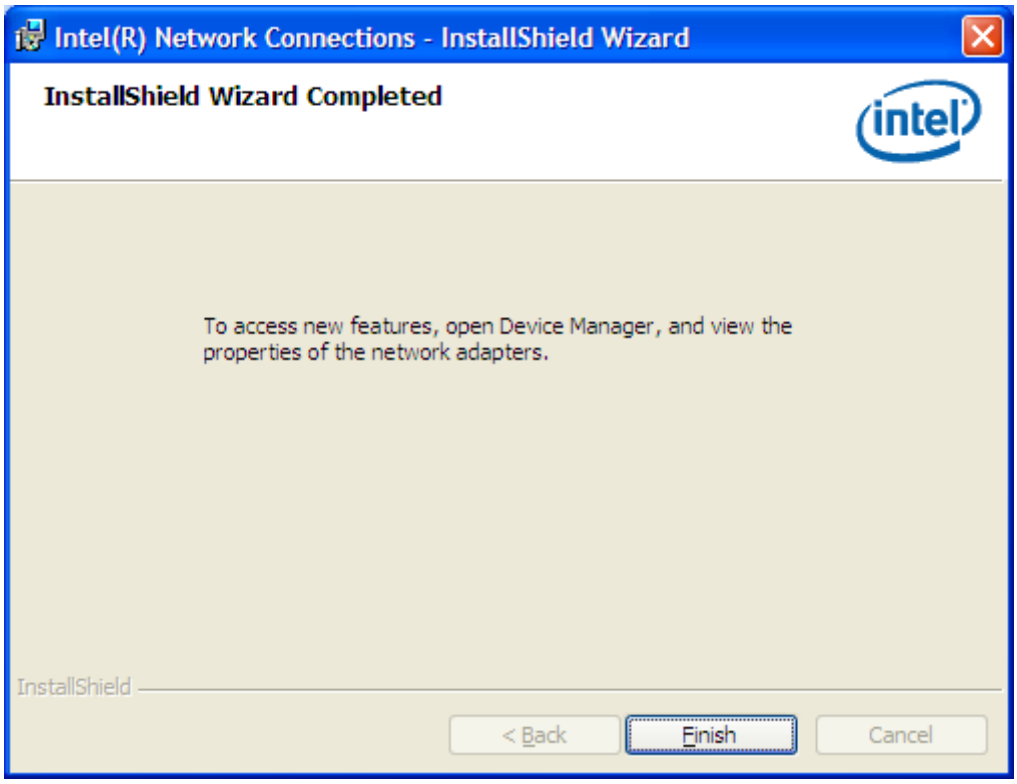

Intel(R) Network Connections - InstallShield Wizard
Welcome to the InstallShield Wizard for Intel(R) Network Connections
intel
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
WARNING: This program is protected by copyright law and international treaties.
InstallShield
< Back
Next >
Cancel


Intel(R) Network Connections - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
INTEL SOFTWARE LICENSE AGREEMENT (Final, License)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this
I accept the terms in the license agreement
I do not accept the terms in the license agreement
Print
InstallShield
< Back
Next >
Cancel


Intel(R) Network Connections
Setup Options
Select the program features you want installed.
Install:
Drivers
Intel(R) PROSet for Windows* Device Manager
Advanced Network Services
Intel(R) Network Connections SNMP Agent
Feature Description
< Back
Next >
Cancel


Intel(R) Network Connections - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel


Intel(R) Network Connections - InstallShield Wizard
Installing Intel(R) Network Connections
The program features you selected are being installed.
Please wait while the InstallShield Wizard installs Intel(R) Network Connections. This may take several minutes.
Status:
InstallShield
< Back
Next >
Cancel

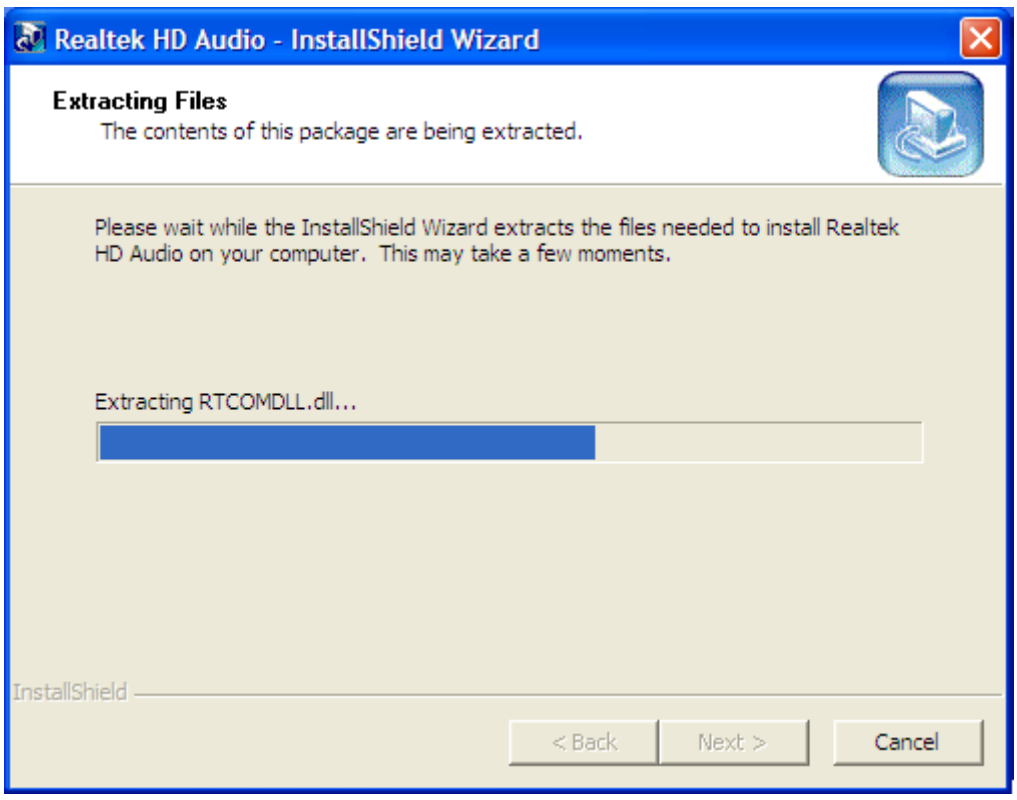


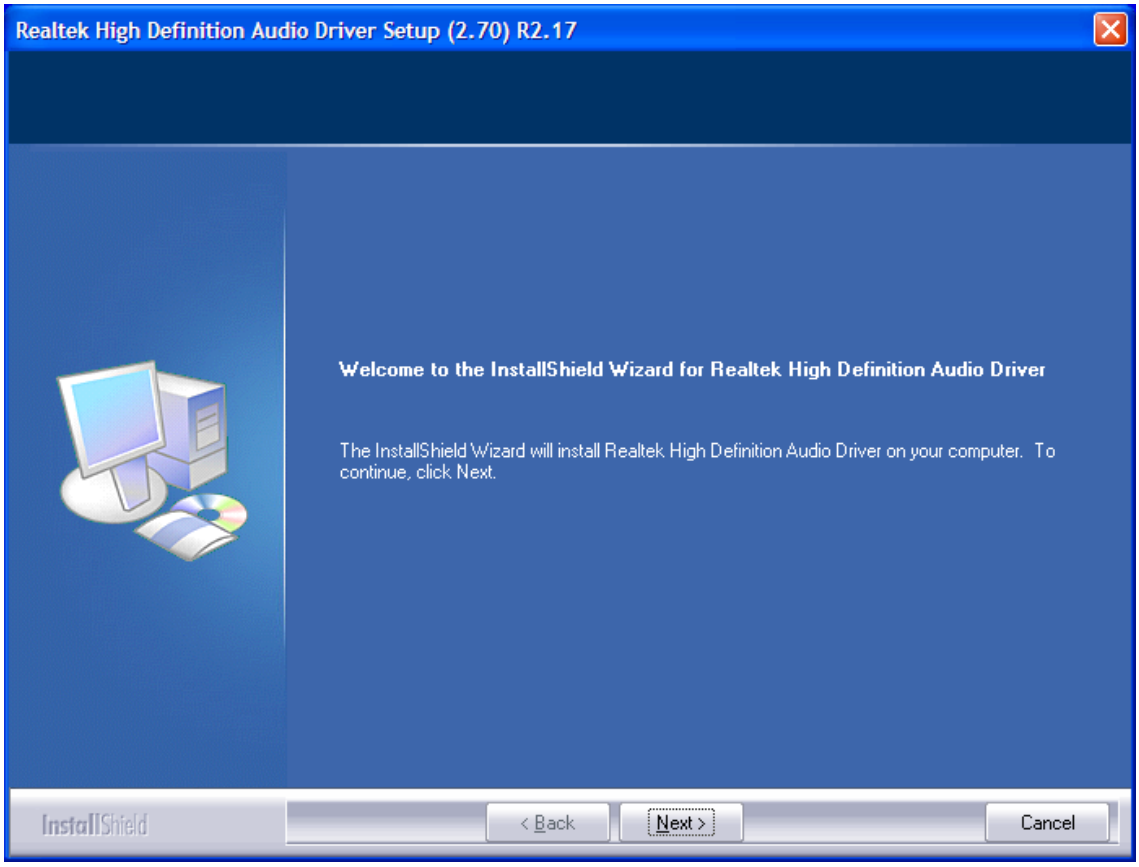
Click FINISH; A Driver Installation Complete.

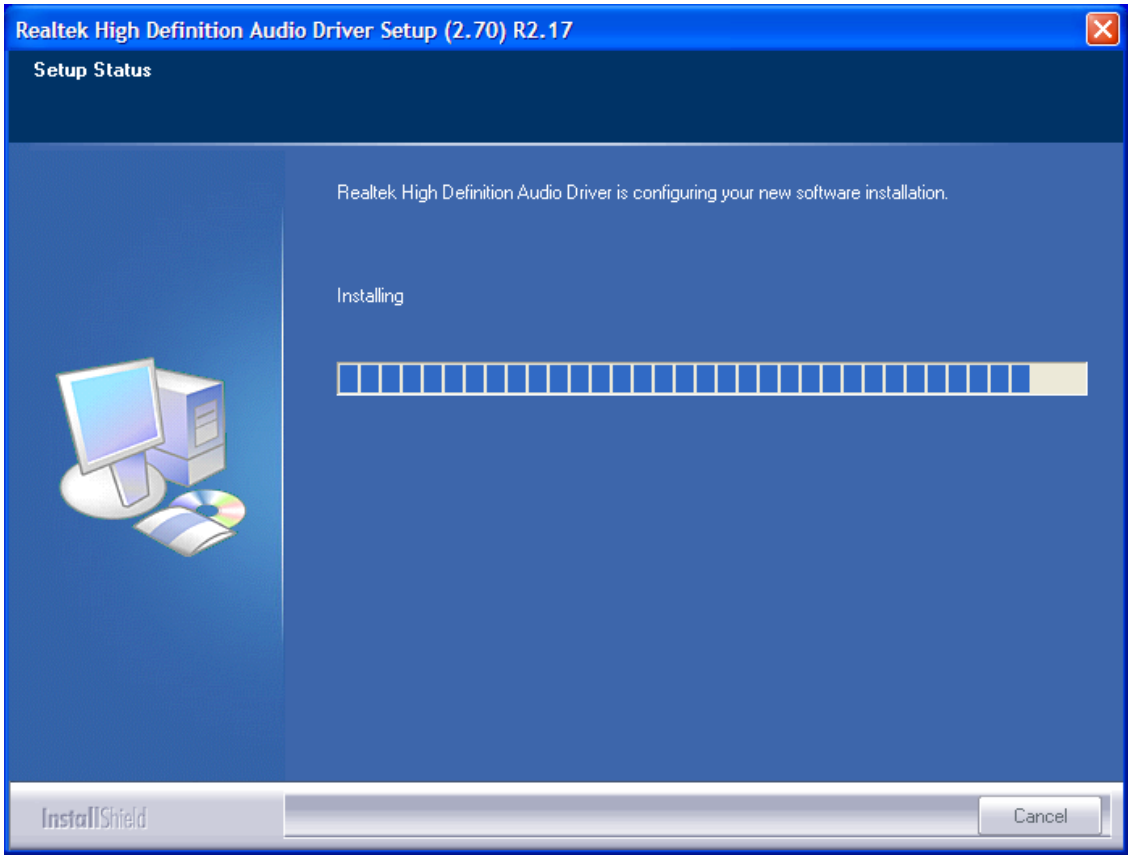
4.4 Realtek HD Audio Driver Installation

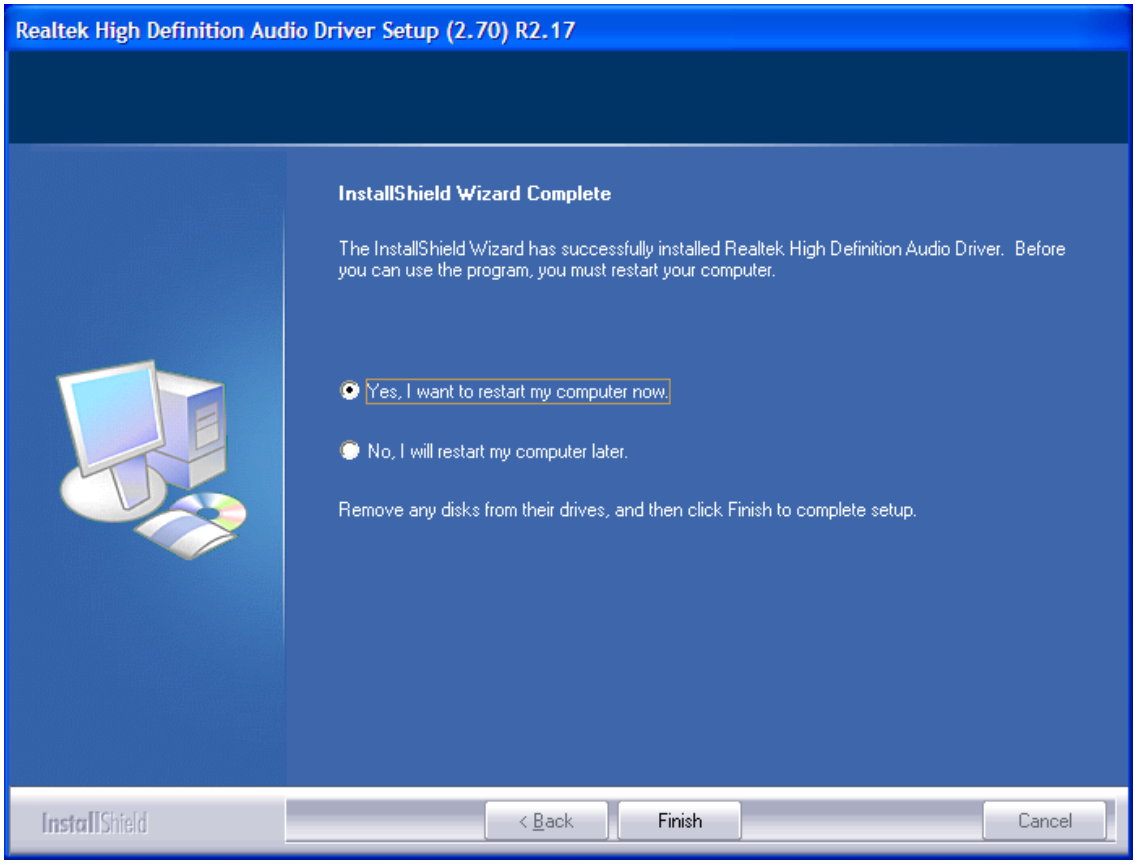
To install the Realtek High Definition (HD) Audio driver, please follow the steps below.
Select Audio from the list

Follow the step-by-step installation process to install the Realtek HD Audio driver.


Realtek HD Audio - InstallShield Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield Wizard extracts the files needed to install Realtek HD Audio on your computer. This may take a few moments.
Extracting RTCOMDLL.dll...
InstallShield
< Back
Next >
Cancel


Realtek High Definition Audio Driver Setup (2.70) R2.17
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel


Realtek High Definition Audio Driver Setup (2.70) R2.17
Setup Status
Realtek High Definition Audio Driver is configuring your new software installation.
Installing
InstallShield
Cancel


Realtek High Definition Audio Driver Setup (2.70) R2.17
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

Click FINISH; A Driver Installation Complete.

4.5 Intel Active Management Technology Driver Installation

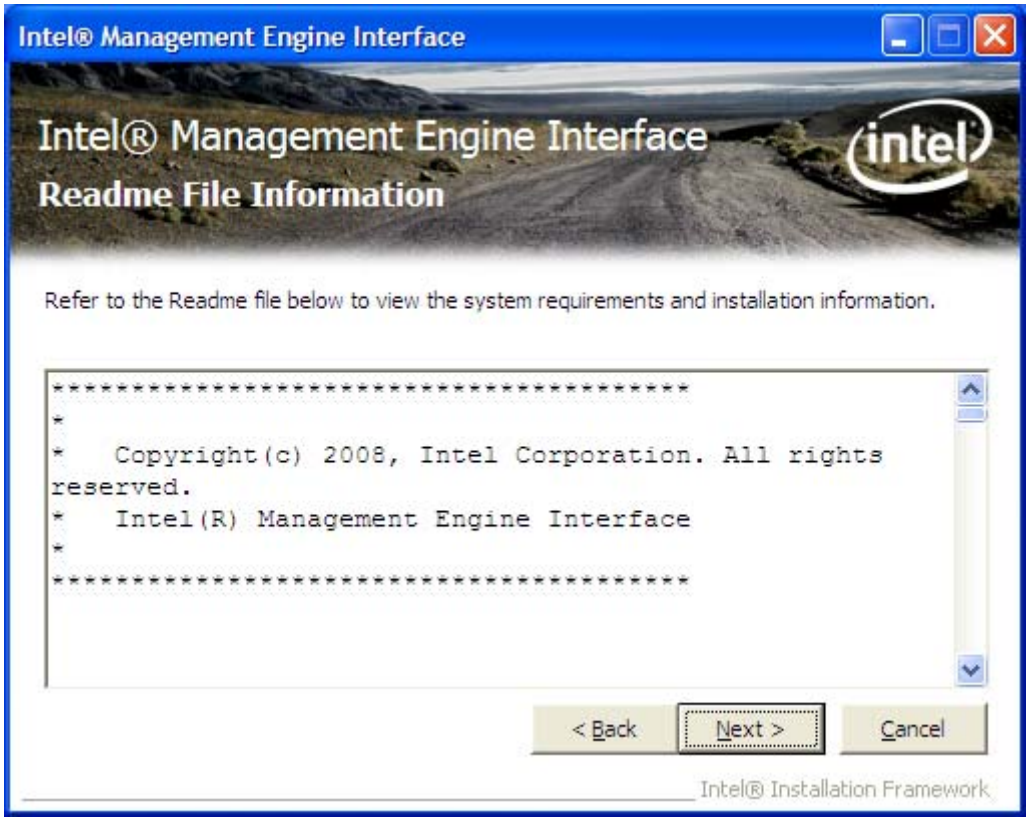
To install the Intel Active Management Technology (IAMT) driver, please follow the steps below:

4.5.1 Select iAMTand Utilities (LMS_SQL) from the list

Follow the step-by-step installation process to install the LMS_SQL driver.

Intel® Management Engine Interface
Intel® Management Engine Interface
intel
Welcome to the Setup Program
This setup program will install the Intel® Management Engine Interface onto this computer. It is strongly recommended that you exit all programs before continuing.
Click Next to continue.
< Back
Next >
Cancel
Intel® Installation Framework

Intel® Management Engine Interface
Intel® Management Engine Interface
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework


Intel® Management Engine Interface
Intel® Management Engine Interface
Readme File Information
Refer to the Readme file below to view the system requirements and installation information.
****
*
* Copyright(c) 2008, Intel Corporation. All rights reserved.
* Intel(R) Management Engine Interface
*
****
< Back
Next >
Cancel
Intel® Installation Framework

Intel® Management Engine Interface
Intel® Management Engine Interface
Setup Is Complete
The setup program successfully installed the Intel® Management Engine Interface onto this computer. Click Finish to complete the setup process.
Finish
Intel® Installation Framework

Click Finish to complete the setup process.

Chapter 5 Touch Screen Installation

This chapter describes how to install drivers and other software that will allow your PenMount 6000 Controller Board to work with different operating systems.

NOTE: PenMount USB drivers support up to 15 USB controllers.

5.1 Introduction to Touch Screen Controller Board

PenMount 6300 USB control board is a touch screen control board designed for USB interface and specific for 4, 5, 8-wire touch screens. It is designed with USB interface features with multiple devices supporting function. PenMount 6300 control board using PenMount 6000 controller that has been designed for those who may like and all-in-one solution with 10-bit A/D converter built-in to make the total printed circuit board denser, circuit diagram also designed for 12-bit ADC for optional. There are two connectors on this board, one connector is for 4, 5, 8-wire touch screen cable (optional), and another is for 4-pin USB A type cable (optional).

Figure 5.1: Bird's Eye View of Control Board

5.2 Windows 2000/XP/2003/Vista Universal Driver Installation for PenMount 6000 Series

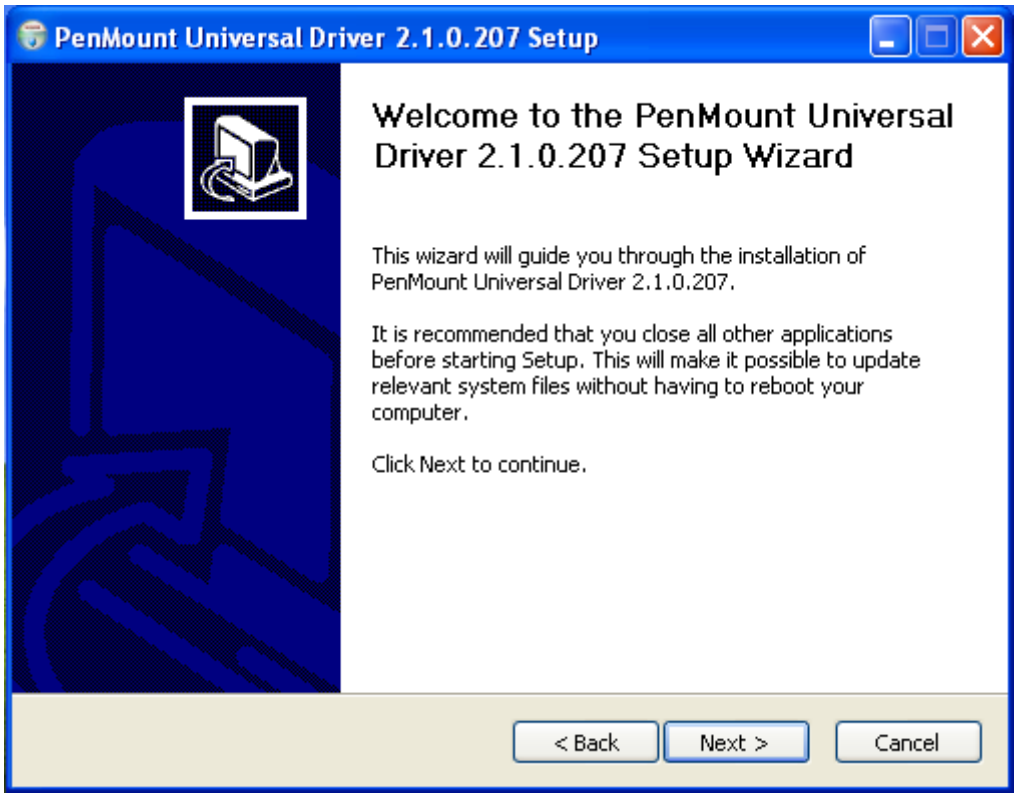
Before installing the Windows 2000/XP driver software, you must have the Windows 2000/XP system installed and running on your computer. You must also have one of the following PenMount 6000 series controller or control boards installed: PM6500, PM6300.

5.2.1 Installing Software

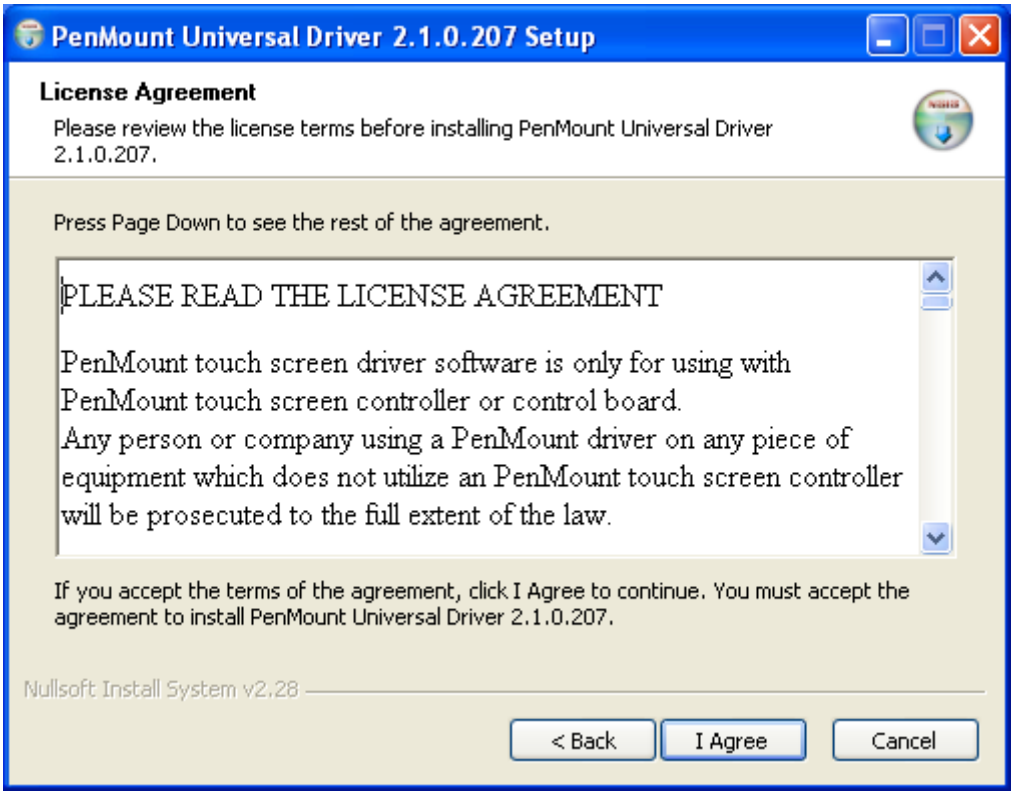
If you have an older version of the PenMount Windows 2000/XP driver installed in your system, please remove it first. Follow the steps below to install the PenMount DMC6000 Windows 2000/XP driver.

1. Please make sure your PenMount 6000 device had plugged in advance. If your device uses RS232 interface, please plugged in before the machine is turned on. When the system first detects the controller board, a screen appears that shows “Unknown Device”. Do not use this hardware wizard. Press Cancel.

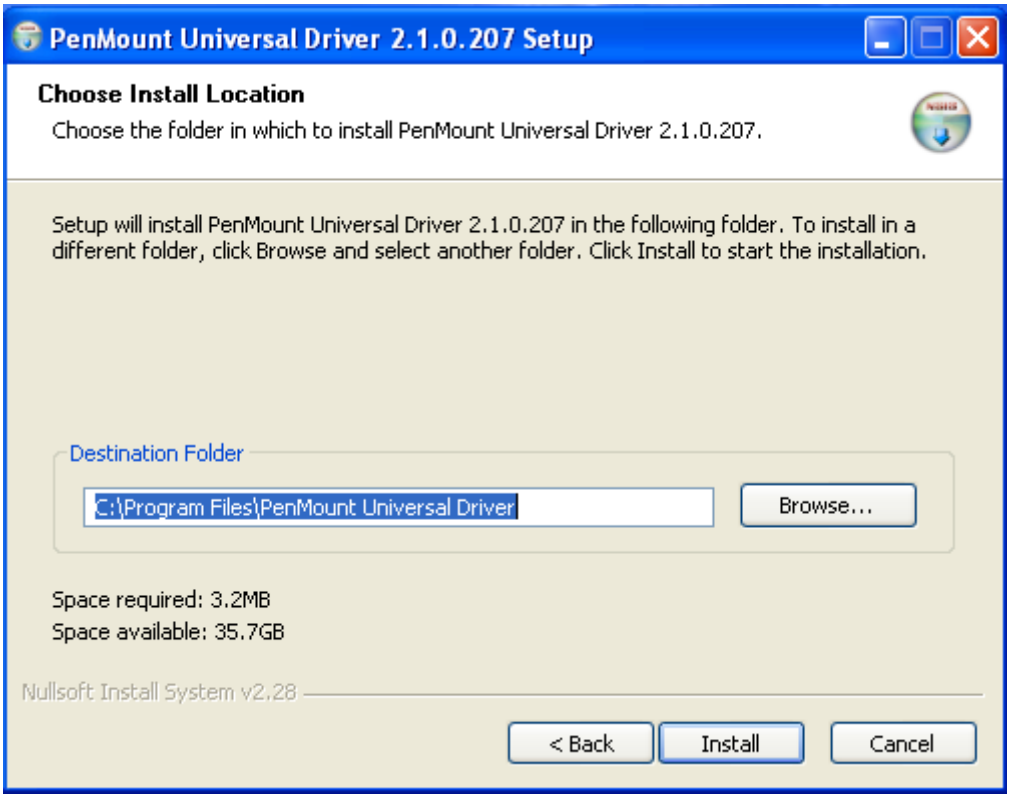
2. Insert the Aplex product CD install **setup.exe.** the screen below would appear. Click touch panel driver


PenMount Universal Driver 2.1.0.207 Setup
Welcome to the PenMount Universal Driver 2.1.0.207 Setup Wizard
This wizard will guide you through the installation of PenMount Universal Driver 2.1.0.207.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
< Back
Next >
Cancel

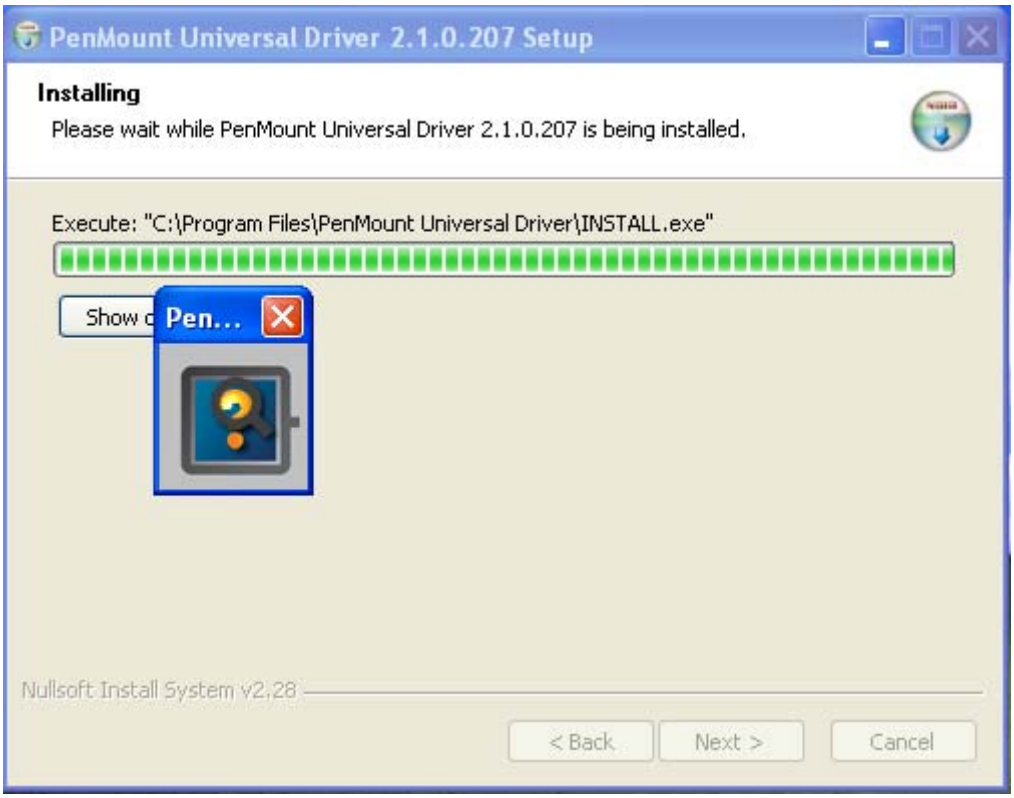
3. A License Agreement appears. Click "**I accept…**" and "**Next**"


PenMount Universal Driver 2.1.0.207 Setup
License Agreement
Please review the license terms before installing PenMount Universal Driver 2.1.0.207.
Press Page Down to see the rest of the agreement.
PLEASE READ THE LICENSE AGREEMENT
PenMount touch screen driver software is only for using with PenMount touch screen controller or control board.
Any person or company using a PenMount driver on any piece of equipment which does not utilize an PenMount touch screen controller will be prosecuted to the full extent of the law.
If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install PenMount Universal Driver 2.1.0.207.
Nullsoft Install System v2.28
< Back
I Agree
Cancel

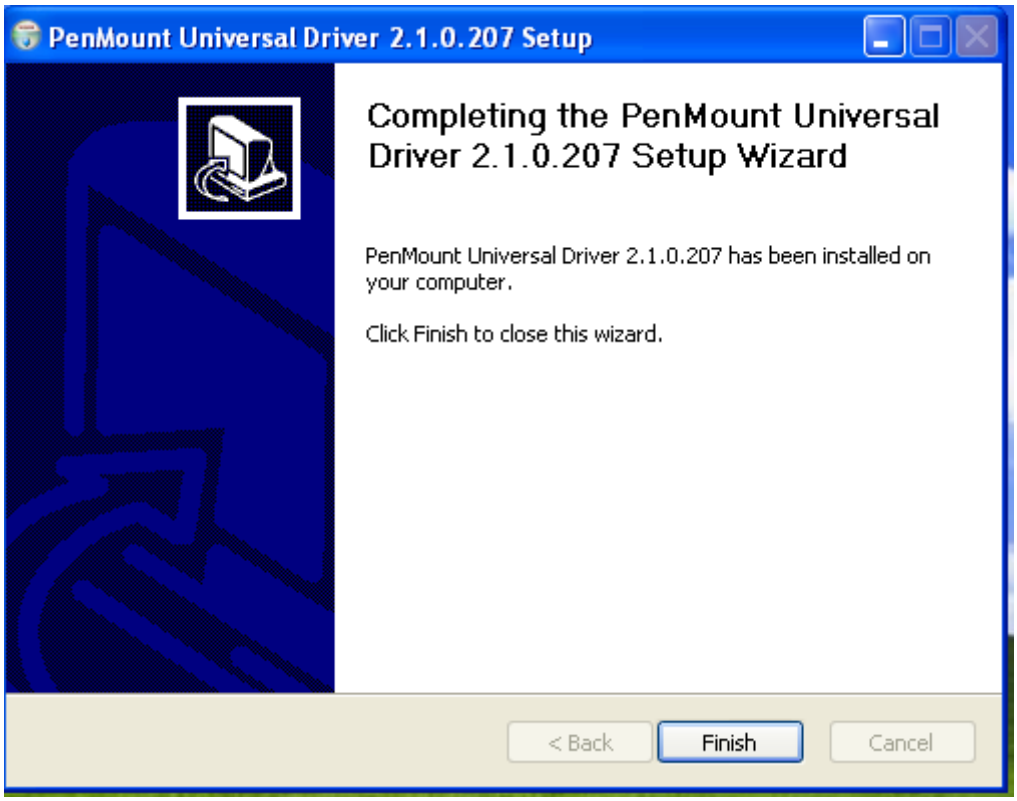
4. Ready to Install the Program. Click "**Install**"


PenMount Universal Driver 2.1.0.207 Setup
Choose Install Location
Choose the folder in which to install PenMount Universal Driver 2.1.0.207.
Setup will install PenMount Universal Driver 2.1.0.207 in the following folder. To install in a different folder, click Browse and select another folder. Click Install to start the installation.
Destination Folder
C:\Program Files\PenMount Universal Driver
Browse...
Space required: 3.2MB
Space available: 35.7GB
Nullsoft Install System v2.28
< Back
Install
Cancel

5. Installing



6. The “Install Shield Wizard Completed” appears. Click “**Finish**”.


PenMount Universal Driver 2.1.0.207 Setup
Completing the PenMount Universal Driver 2.1.0.207 Setup Wizard
PenMount Universal Driver 2.1.0.207 has been installed on your computer.
Click Finish to close this wizard.
< Back
Finish
Cancel

5.2.2 Software Functions

Upon rebooting, the computer automatically finds the new 6000 controller board. The touch screen is connected but not calibrated. Follow the procedures below to carry out calibration.

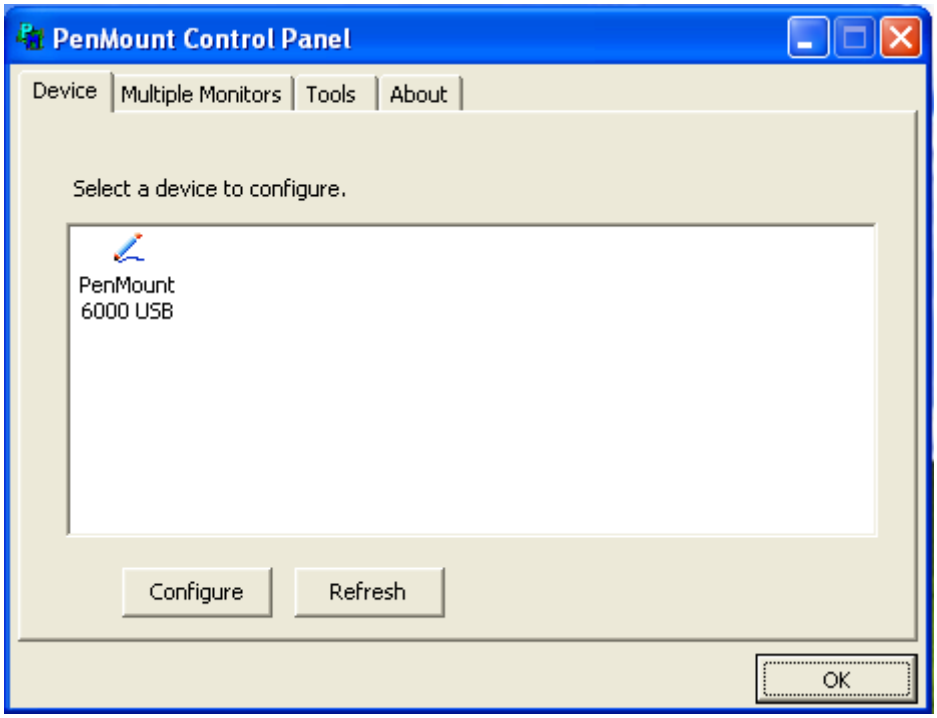
1. After installation, click the PenMount Monitor icon “PM” in the menu bar.
2. When the PenMount Control Panel appears, select a device to “Calibrate.”

PenMount Control Panel

The functions of the PenMount Control Panel are **Device, Multiple Monitors** ,**Tools** and **About**, which are explained in the following sections.

Device

In this window, you can find out that how many devices be detected on your system.



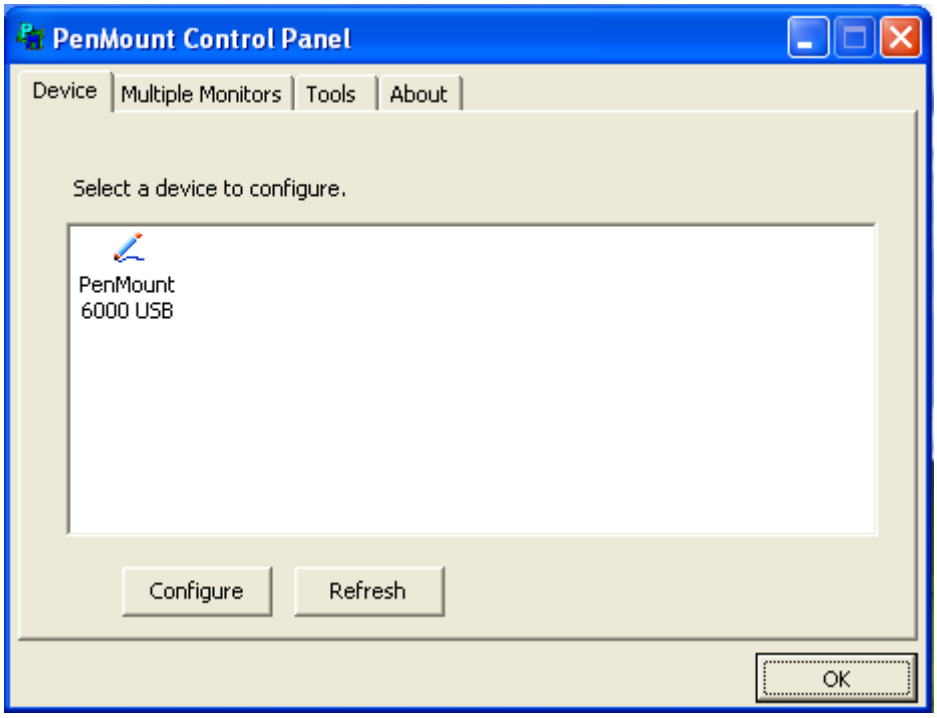
Calibrate

This function offers two ways to calibrate your touch screen. ‘Standard Calibration’ adjusts most touch screens. ‘Advanced Calibration’ adjusts aging touch screens.

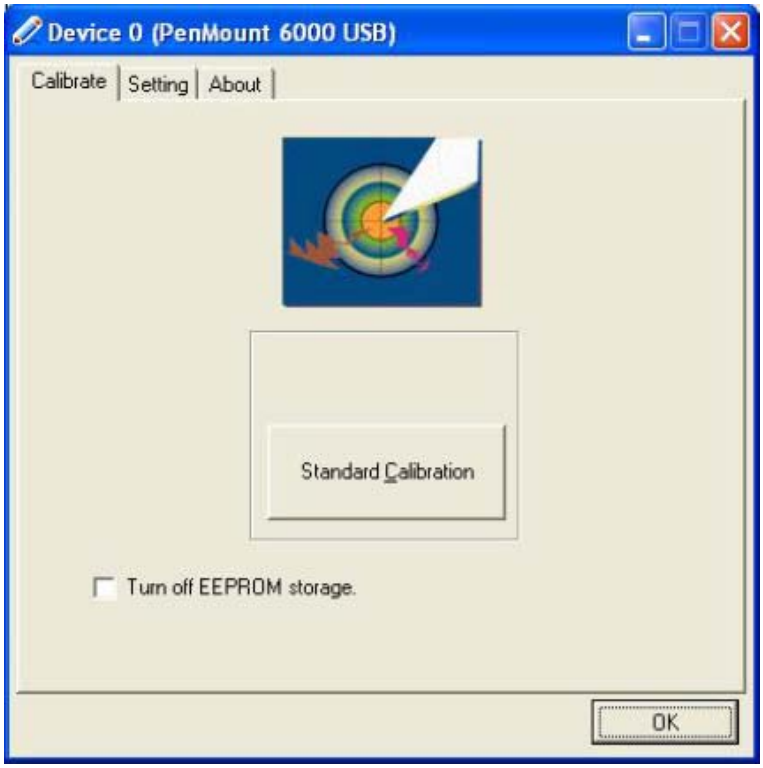
Standard Calibration	**Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press ‘ESC’.**

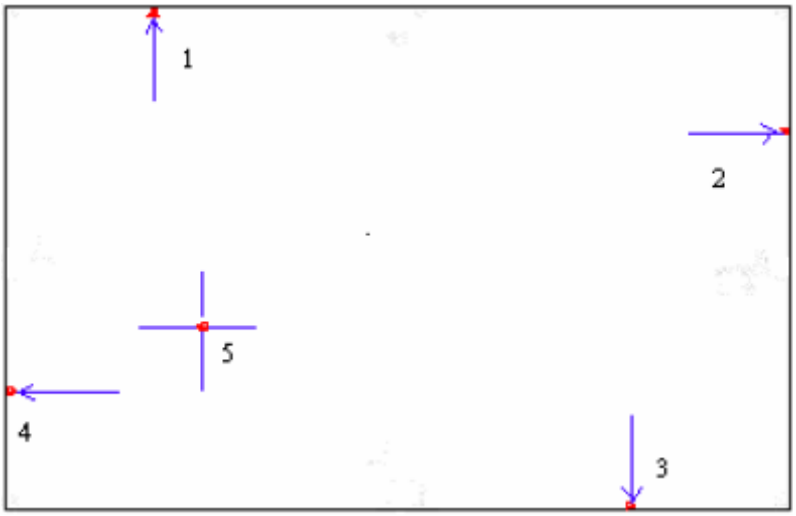
Advanced Calibration	**Advanced Calibration uses 4, 9, 16 or 25 points to effectively calibrate touch panel linearity of aged touch screens. Click this button and touch the red squares in sequence with a stylus. To skip, press ESC'.**
Command Calibration	**Command call calibration function. Use command mode call calibration function, this can uses Standard, 4, 9, 16 or 25 points to calibrate** E.g. Please run ms-dos prompt or command prompt c:\Program Files\PenMount Universa Driver\Dmcctrl.exe -calibration 0 (Standard Calibration) Dmcctrl.exe - calibration ($) 0= Standard Calibration 4=Advanced Calibration 4 9=Advanced Calibration 9 16=Advanced Calibration 16 25=Advanced Calibration 25

1. Please select a device then click "Configure". You can also double click the device too.



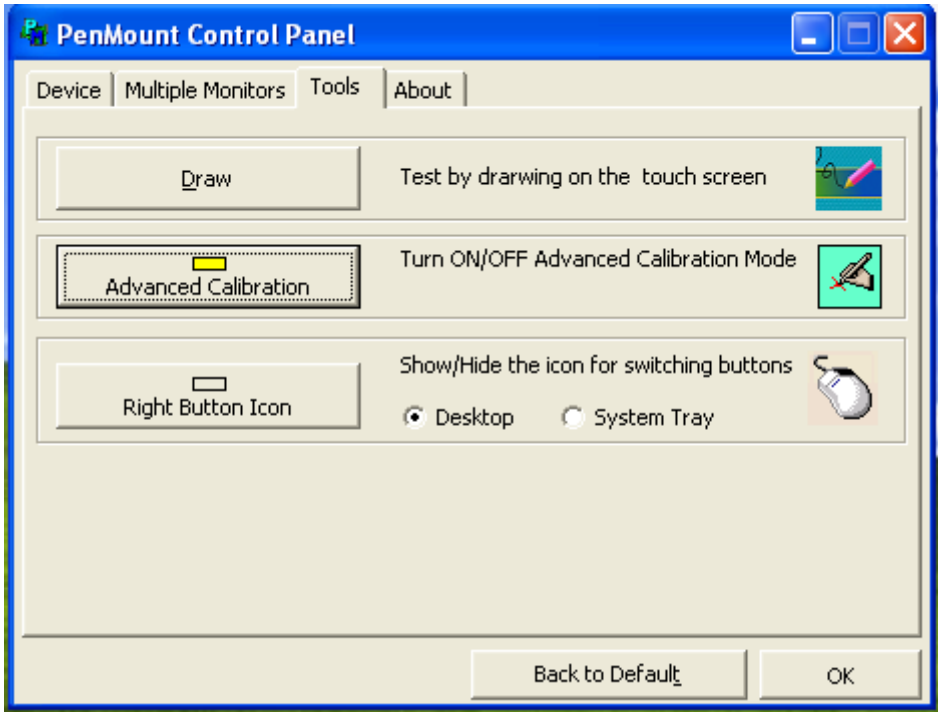
2.Click "Standard Calibration" to start calibration procedure



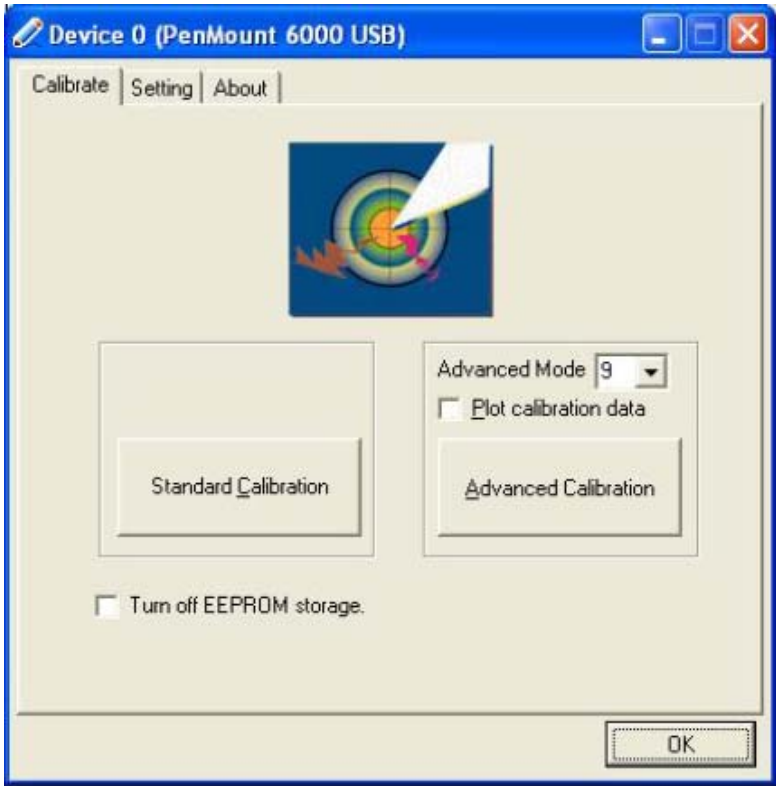


NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy. Please follow the step as below:

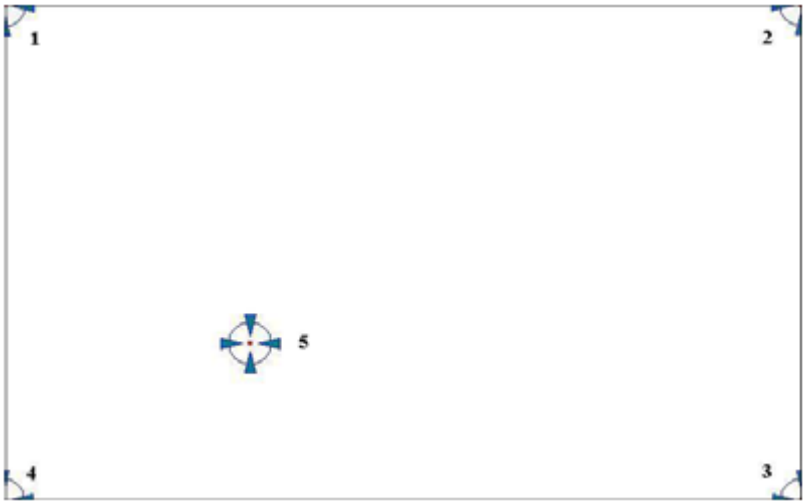
3.Come back to “PenMount Control Panel” and select “**Tools**” then Click “**Advanced Calibration**”.



Select “**Device**” to calibrate, then you can start to do “Advanced Calibration”.



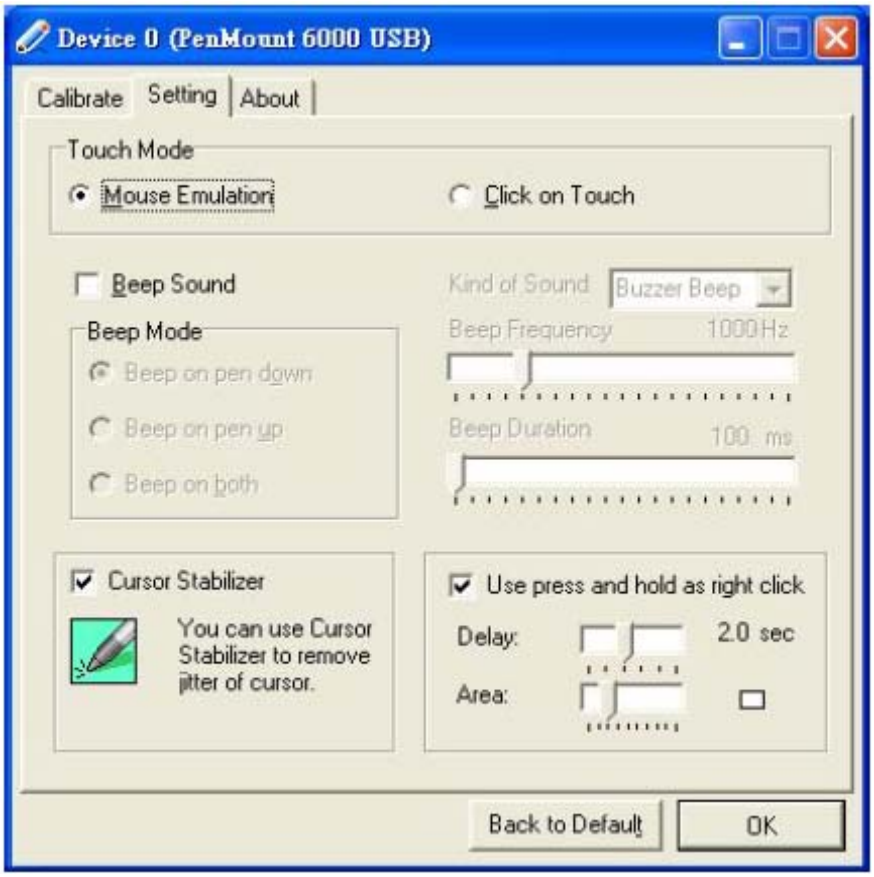
NOTE: Recommend to use a stylus during Advanced Calibration for greater accuracy.



Plot Calibration Data	**Check this function and a touch panel linearity comparison graph appears when you have finished Advanced Calibration. The blue lines show linearity before calibration and black lines show linearity after calibration.**
Turn off EEPROM storage	**The function disable for calibration data to write in Controller. The default setting is Enable**

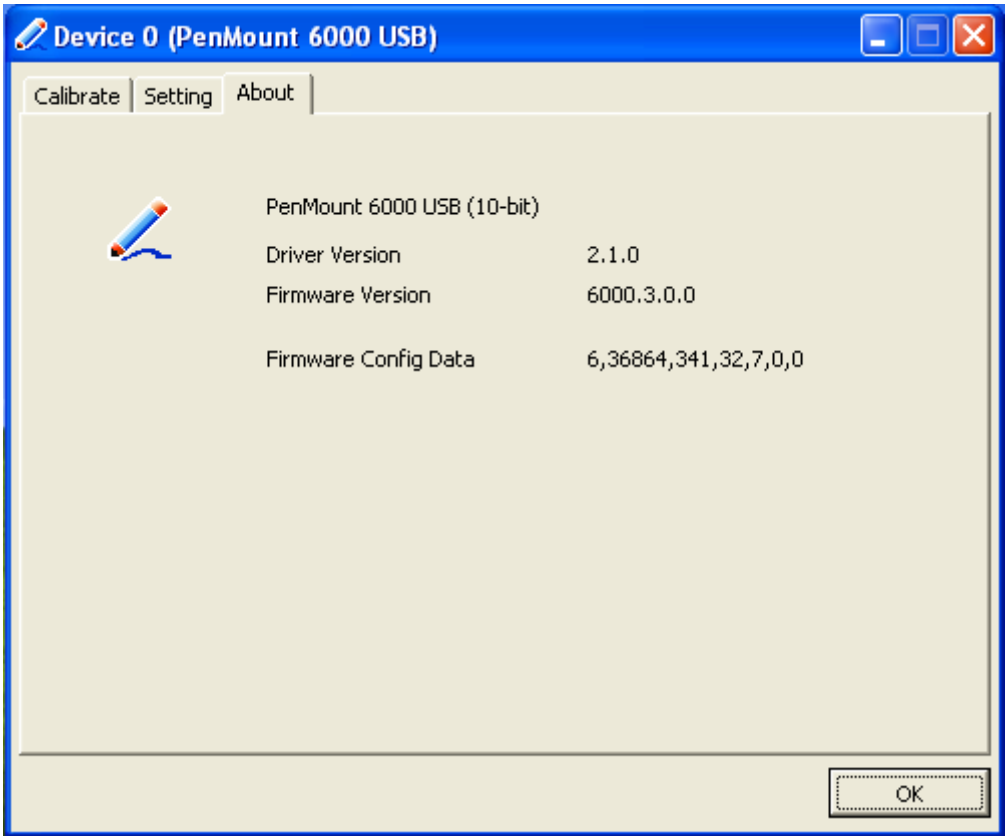
Setting

Touch Mode	**This mode enables and disables the mouse's ability to drag on-screen icons—useful for configuring POS terminals.** **Mouse Emulation – Select this mode and the mouse functions as normal and allows dragging of icons.** **Click on Touch – Select this mode and the mouse only provides a click function, and dragging is disabled**
Beep Sound	**Enable Beep Sound – turns beep function on and off** **Beep on Pen Down – beep occurs when pen comes down** **Beep on Pen Up – beep occurs when pen is lifted up** **Beep on both – beep occurs when comes down and lifted up** **Beep Frequency – modifies sound frequency** **Beep Duration – modifies sound duration**
Cursor Stabilizer	**Enable the function support to prevent cursor shake.**
Use press and hold as right click	**You can set the time out and area for you need**



About

This panel displays information about the PenMount controller and driver version.



Multiple Monitors

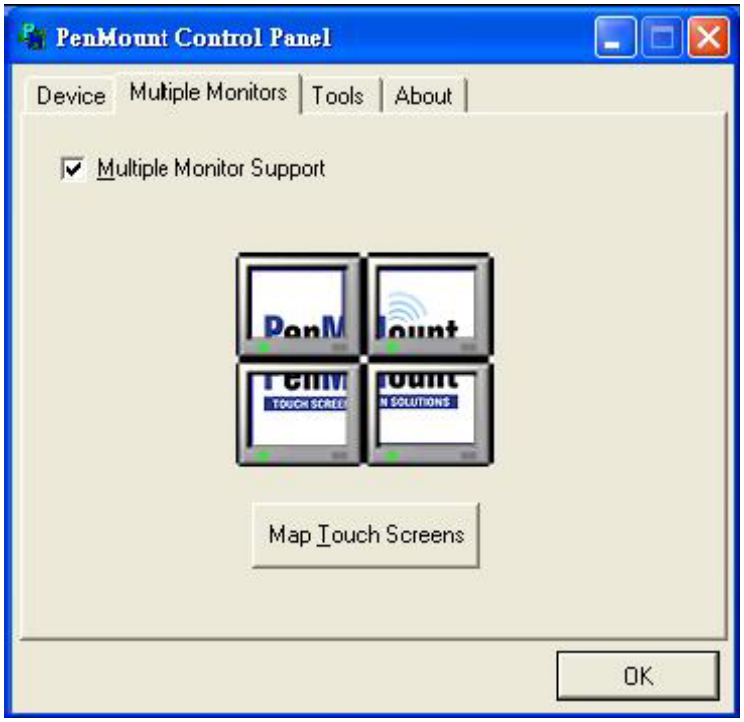
Multiple Monitors supports from two to six touch screen displays for one system. The PenMount drivers for Windows 2000/XP support Multiple Monitors. This function supports from two to six touch screen displays for one system. Each monitor requires its own PenMount touch screen control board, either installed inside the display or in a central unit. The PenMount control boards must be connected to the computer COM ports via the RS-232 interface. Driver installation procedures are the same as for a single monitor. Multiple Monitors supports the following modes:

Windows Extend Monitor Function
Matrox DualHead Multi-Screen Function
nVidia nView Function

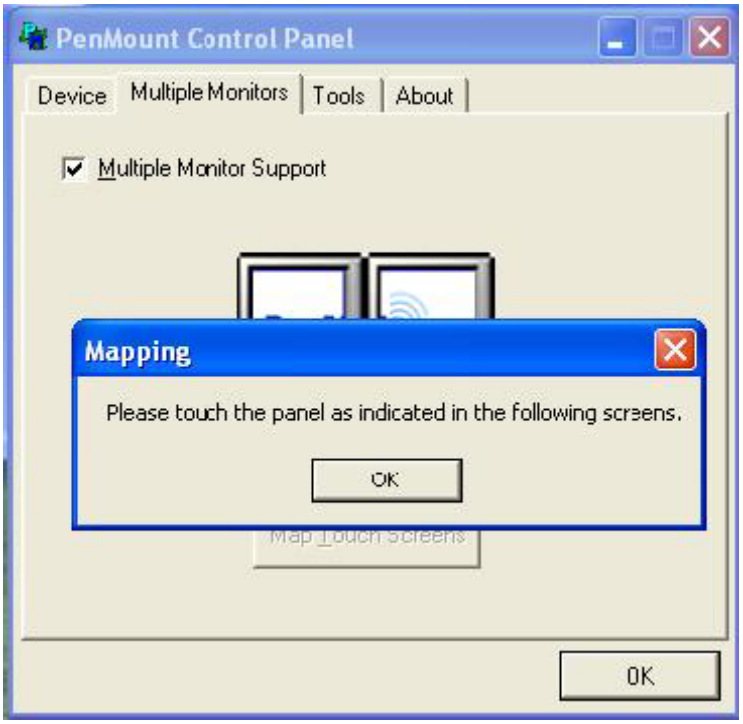
NOTE: The Multiple Monitors function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the Rotating function is disabled.

Enable the multiple display function as follows:

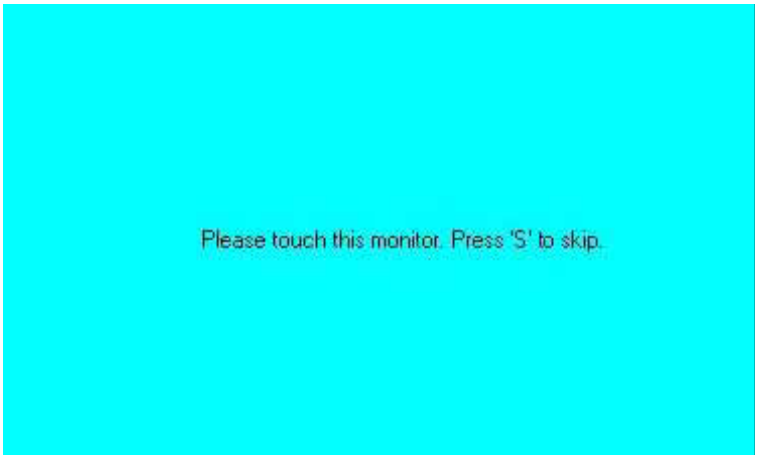
1. Check the "**Multiple Monitor Support"** box; then click "**Map Touch Screens"** to assign touch controllers to displays.



2. When the mapping screen message appears, click "**OK"**



3. Touch each screen as it displays **“Please touch this monitor. Press ‘S’ to skip”** Following this sequence and touching each screen is called **mapping the touch screens**.



4. After the setting procedure is finished, maybe you need to calibrate for each panel and controller

NOTES:

1. If you used a single VGA output for multiple monitors, please do not use the **Multiple Monitors** function. Just follow the regular procedure for calibration on each of your desktop monitors.

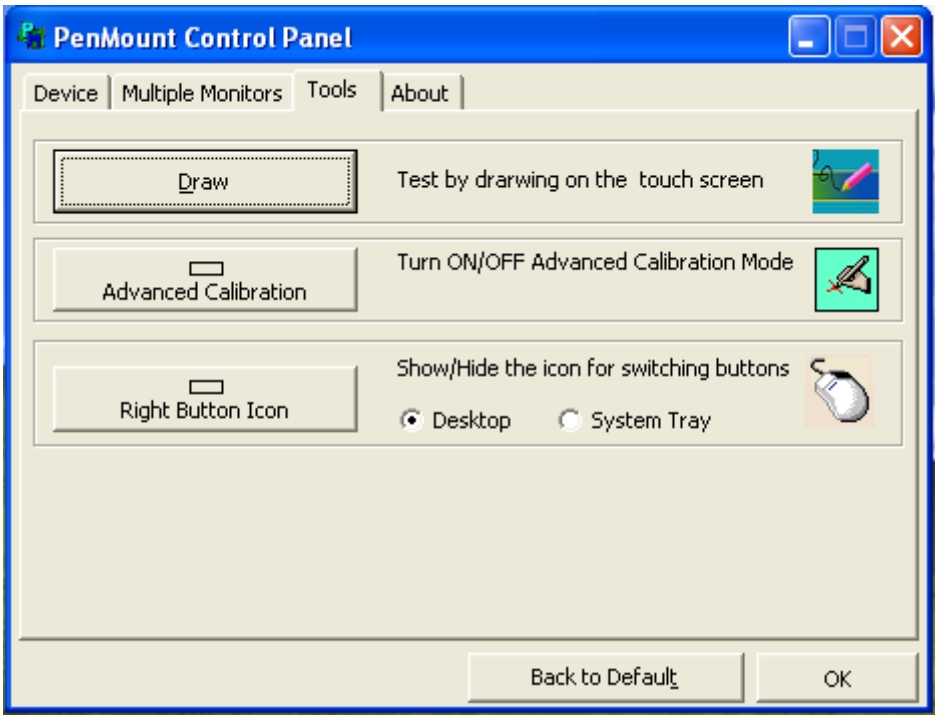
2. The Rotating function is disabled if you use the Multiple Monitors function.

3. If you change the resolution of display or screen address, you have to redo **Map Touch Screens** so the system understands where the displays are.

4. If you more monitor mapping one touch screen, **Please press ‘S’ to skip mapping step.**

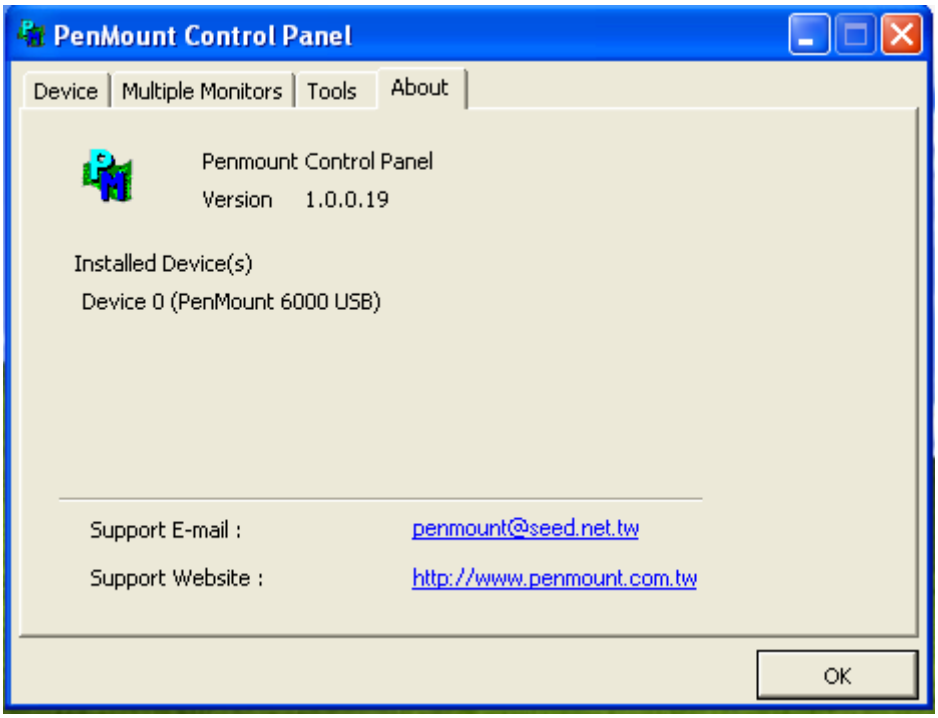
Tools

Draw	**Tests or demonstrates the PenMount touch screen operation.**
Advanced Calibration	**Enable Advanced Calibration function**
Right Button Icon	**Enable right button function. The icon can show on Desktop or System Tray (menu bar).**



About

You can see how many devices of PenMount controller that are plugged to your system



PenMount Monitor Menu Icon

The PenMount monitor icon (PM) appears in the menu bar of Windows 2000/XP system when you turn on PenMount Monitor in PenMount Utilities.

PenMount Monitor has the following function

Control Panel	**Open Control Panel Windows**
Beep	**Setting Beep function for each device**
Right Button	**When you select this function, a mouse icon appears in the right-bottom of the screen. Click this icon to switch between Right and Left Button functions.**
Exit	**Exits the PenMount Monitor function.**

PenMount Rotating Functions

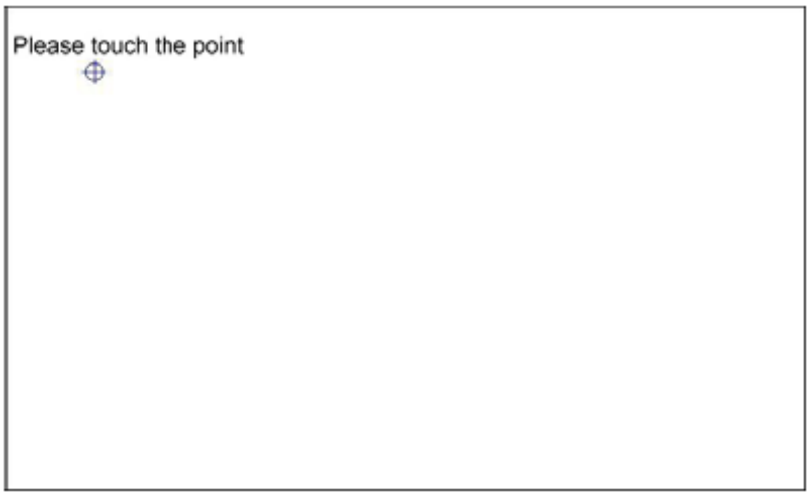
The PenMount driver for Windows 2000/XP supports several display rotating software packages.

Windows Me/2000/XP support display rotating software packages such as:

- Portrait's Pivot Screen Rotation Software
- ATI Display Driver Rotate Function
- nVidia Display Driver Rotate Function
- SMI Display Driver Rotate Function
- Intel 845G/GE Display Driver Rotate Function

Configuring the Rotate Function

1. Install the rotation software package.
2. Choose the rotate function (0°, 90°, 180°, 270°) in the 3rd party software. The calibration screen appears automatically. Touch this point and rotation is mapped.



NOTE: The Rotate function is disabled if you use Monitor Mapping